

Lampiran 1 : Perbandingan Hasil Perhitungan Kebutuhan *Teller* Bank XYZ Saat Ini dengan Perhitungan *Naive Capacity Planning*

NO. CABANG	WIL	TRANSAKSI				TELLER						
		TUNAI	PBK	S KLR	PU	AKTUAL	STD	STD VS AKT	PU	STD1	ARR RATE	STD 2
1	JABAR	1118	497	124	0	11	12	0	0	12	199	10
2	JABAR	1963	1340	370	0	24	22	1	0	22	420	21
3	JABAR	625	218	31	0	8	6	1	0	6	100	5
4	JABAR	1135	727	426	0	18	12	1	0	12	261	14
5	JABAR	983	348	85	0	10	9	1	0	9	162	9
6	JABAR	550	227	56	0	10	6	1	0	6	95	5
7	JABAR	764	190	21	0	9	8	1	0	8	111	6
8	JABAR	920	718	286	0	12	10	1	0	10	220	11
9	JABAR	720	187	12	0	11	7	1	0	7	105	6
10	JABAR	860	391	135	0	11	8	1	0	8	158	8
11	JABAR	818	548	223	0	13	8	1	0	8	182	10
12	JATENG	568	95	6	1	7	6	1	1	5	76	4
13	JATENG	600	501	158	0	7	7	0	0	7	144	8
14	JATENG	987	339	48	5	14	10	1	1	9	157	8
15	JATENG	756	258	94	19	8	9	0	3	6	127	7
16	JATENG	645	495	54	0	9	6	1	0	6	136	7
17	JATENG	441	57	7	0	10	4	1	0	4	58	3
18	JATENG	956	560	208	1	11	10	1	1	9	197	10
19	JATENG	653	104	22	0	9	6	1	0	6	89	5
20	JATENG	1773	1262	344	6	24	21	1	1	20	386	20
21	JATENG	1422	1216	344	3	20	17	1	1	16	341	18
22	JATENG	629	286	130	0	10	7	1	0	7	119	6
23	JATENG	903	356	65	1	13	9	1	1	8	151	8
24	JATENG	1570	828	205	4	21	16	1	1	15	297	15
25	JATIM-SBY	1065	1158	226	0	18	13	1	0	13	280	14
26	JATIM-SBY	848	593	136	0	13	8	1	0	8	180	9
27	JATIM-SBY	533	129	36	0	6	5	1	0	5	80	4
28	JATIM-SBY	744	801	170	0	8	9	0	0	9	196	10
29	JATIM-SBY	531	453	90	0	8	5	1	0	5	123	7
30	JATIM-SBY	840	226	33	0	10	8	1	0	8	126	7
31	JATIM-SBY	481	373	73	0	5	6	0	0	6	106	6
32	JATIM-SBY	848	302	90	0	8	7	1	0	7	142	8
33	JATIM-SBY	677	192	21	0	9	7	1	0	7	102	6
34	JATIM-SBY	1067	857	303	0	10	12	0	0	12	255	13
35	JATIM-SBY	1467	791	181	0	12	14	0	0	14	279	14
36	JATIM-SBY	673	96	20	0	7	6	1	0	6	90	5
37	JATIM-SBY	1159	1341	306	0	15	14	1	0	14	321	17
38	IND-TIMUR	568	127	54	0	9	4	1	0	4	86	5
39	IND-TIMUR	1035	282	90	9	13	9	1	2	7	161	9
40	IND-TIMUR	1713	1628	741	47	25	28	0	6	22	467	24
41	IND-TIMUR	407	106	43	0	4	4	0	0	4	64	4
42	IND-TIMUR	486	135	48	20	6	7	0	3	4	76	4
43	IND-TIMUR	767	298	70	0	7	8	0	0	8	130	7
44	IND-TIMUR	1142	386	238	28	20	15	1	4	11	202	11
45	IND-TIMUR	822	628	236	14	12	11	1	2	9	193	10
46	IND-TIMUR	1014	412	202	18	12	12	0	3	9	186	10
47	IND-TIMUR	330	110	22	0	6	3	1	0	3	53	3
48	IND-TIMUR	596	172	73	8	10	7	1	1	6	96	5
49	IND-TIMUR	763	235	69	0	10	8	1	0	8	122	7
50	SUM-MDN	726	95	24	0	8	7	1	0	7	97	5
51	SUM-MDN	1025	427	115	3	17	10	1	1	9	179	9
52	SUM-MDN	981	421	289	0	16	10	1	0	10	193	10
53	SUM-MDN	457	79	31	0	8	4	1	0	4	65	4
54	SUM-MDN	395	27	4	0	6	4	1	0	4	49	3
55	SUM-MDN	1189	786	373	3	14	13	1	1	12	268	14
56	SUM-MDN	966	402	154	2	12	9	1	1	8	174	9
57	SUM-MDN	1169	451	192	0	14	11	1	0	11	207	11
58	SUM-MDN	499	91	33	0	6	5	1	0	5	71	4
59	SUM-MDN	257	161	29	0	5	3	1	0	3	51	3
60	SUM-MDN	775	322	88	0	10	8	1	0	8	135	7
61	SUM-MDN	417	123	40	3	8	5	1	1	4	66	4
62	SUM-LPG	1048	881	196	3	12	12	0	1	11	243	13
63	SUM-LPG	882	179	85	36	10	13	0	5	8	131	7
64	SUM-LPG	1277	656	208	4	17	13	1	1	12	245	13
65	SUM-LPG	662	190	56	0	7	7	0	0	7	104	6
66	SUM-LPG	1586	840	203	7	22	15	1	1	14	300	15
67	SUM-LPG	1207	313	68	5	13	11	1	1	10	181	10
68	SUM-LPG	486	97	0	0	7	5	1	0	5	67	4
69	JATIM-MLG	807	118	33	2	6	7	0	1	6	109	6

NO. CABANG	WIL	TRANSAKSI				TELLER						
		TUNAI	PBK	S KLR	PU	AKTUAL	STD	STD VS AKT	PU	STD1	ARR RATE	STD 2
81	JKT-SEL	774	444	57	0	6	7	0	0	7	146	8
82	JKT-SEL	590	631	34	0	13	6	1	0	6	143	8
83	JKT-SEL	929	202	46	0	9	9	0	0	9	135	7
84	JKT-SEL	512	491	16	0	9	6	1	0	6	116	6
85	JKT-SEL	1240	918	55	0	25	14	1	0	14	253	13
86	JKT-SEL	585	379	21	0	17	7	1	0	7	113	6
87	JKT-TIM	984	262	104	0	10	10	0	0	10	154	8
88	JKT-TIM	1281	731	413	0	18	12	1	0	12	277	14
89	JKT-TIM	816	742	108	0	9	9	0	0	9	190	10
90	JKT-TIM	848	378	76	0	13	8	1	0	8	149	8
91	JKT-TIM	1347	729	165	0	17	12	1	0	12	256	13
92	JKT-TIM	1050	455	90	0	11	9	1	0	9	182	10
93	JKT-TIM	943	654	191	0	10	12	0	0	12	204	11
94	JKT-TIM	1119	493	68	0	14	12	1	0	12	192	10
95	JKT-TIM	629	396	65	0	7	6	1	0	6	125	7
96	JKT-PUS-UTR	534	950	92	0	8	9	0	0	9	180	9
97	JKT-PUS-UTR	964	1316	259	0	13	12	1	0	12	290	15
98	JKT-PUS-UTR	639	703	158	0	7	8	0	0	8	171	9
99	JKT-PUS-UTR	753	707	133	0	10	8	1	0	8	182	10
100	JKT-PUS-UTR	755	715	204	0	11	9	1	0	9	191	10
101	JKT-PUS-UTR	966	1181	256	0	12	12	0	0	12	275	14
102	JKT-PUS-UTR	960	962	268	0	14	11	1	0	11	250	13
103	KALIMANTAN	1330	525	189	22	19	16	1	3	13	234	12
104	KALIMANTAN	1216	529	183	4	16	11	1	1	10	220	11
105	KALIMANTAN	311	26	1	0	4	3	1	0	3	39	2
106	KALIMANTAN	869	592	229	0	13	10	1	0	10	193	10
107	KALIMANTAN	1567	600	282	10	17	15	1	2	13	280	14
108	KALIMANTAN	360	90	28	0	9	4	1	0	4	55	3
109	KALIMANTAN	144	16	0	0	4	3	1	0	3	18	1
110	JKT-BAR	822	848	146	0	16	9	1	0	9	208	11
111	JKT-BAR	651	680	141	0	13	8	1	0	8	168	9
112	JKT-BAR	766	604	90	0	7	9	0	0	9	167	9
113	JKT-BAR	903	604	145	0	13	8	1	0	8	189	10
114	JKT-BAR	916	369	103	0	10	9	1	0	9	159	8
115	JKT-BAR	490	361	51	0	6	5	1	0	5	103	6
116	JKT-BAR	772	434	81	0	11	7	1	0	7	147	8
117	JKT-BAR	721	785	248	0	12	8	1	0	8	200	10
118	JKT-BAR	1334	1013	209	0	14	14	0	0	14	292	15
119	JKT-BAR	949	1605	305	0	17	15	1	0	15	327	17
120	JKT-BAR	813	740	77	0	16	10	1	0	10	186	10
<b>TOTAL</b>								<b>88</b>		<b>1049</b>		<b>1073</b>
<b>MEAN (<math>\bar{x}</math>)</b>										<b>8.74166667</b>		<b>8.941667</b>
<b>STD DEV (<math>\sigma</math>)</b>										<b>3.604385831</b>		<b>4.121682</b>

**Keterangan tabel:**

judul kolom	keterangan
<b>TRANSAKSI</b>	jumlah transaksi rata-rata per hari
TUNAI	transaksi tunai (setoran/ tarikan tunai)
PBK	transaksi pemindahbukuan (setoran/tarikan antar rekening)
S KLR	transaksi setoran kliring (setoran warkat bank lain)
PU	transaksi setoran jemputan ( <i>pick up</i> )
<b>TELLER</b>	
AKTUAL	jumlah teller aktual di cabang terkait (source : data SDM per Desember 2007)
STD	hasil perhitungan kebutuhan teller dengan metode yang digunakan Bank XYZ saat ini
STD VS AKT	angka 1 jika jumlah aktual teller melebihi jumlah standar teller dengan metode Bank XYZ saat ini dan 0 jika jumlah aktual teller sama dengan atau kurang dari standar dengan metode Bank XYZ saat ini
PU	perhitungan jumlah teller yang melakukan setoran jemputan
STD1	perhitungan jumlah teller yang bertugas di cabang dikurangi teller untuk setoran jemputan (STD-PU)
ARR RATE	rata-rata laju kedatangan nasabah per jam yang diperoleh dari pendekatan jumlah transaksi (80% dari jumlah transaksi dibagi dengan 7 - jam pelayanan dalam 1 hari)
STD2	perhitungan jumlah teller secara <i>naive approach</i> ( <i>arrival rate</i> dibagi dengan <i>service rate</i> ) <i>service rate</i> yang digunakan adalah rata-rata 20 nasabah yang dilayani per jam atau waktu layanan per nasabah rata-rata 3 menit

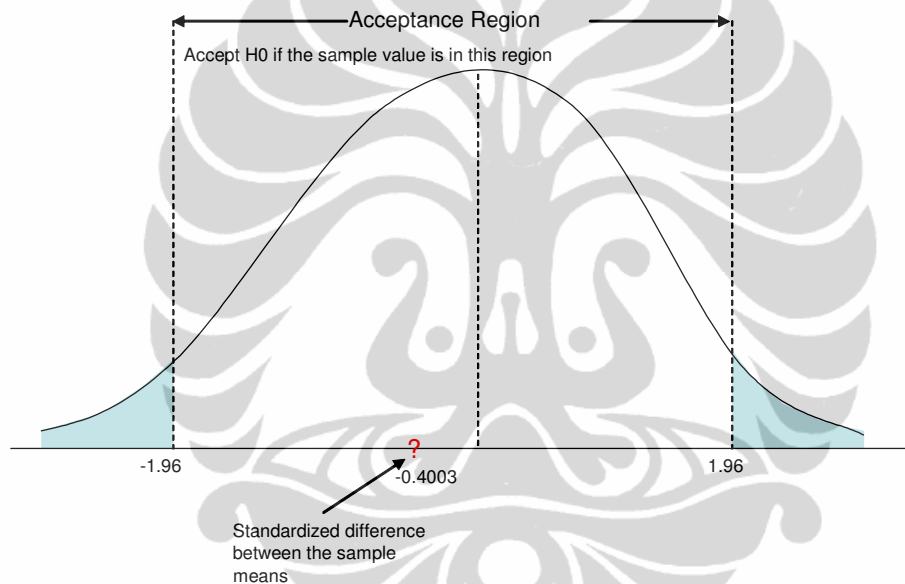
Lampiran 2 : Tes Hipotesis Two-Tailed atas Perbedaan Antara 2 Nilai Rata-rata Pada Tingkat Signifikan 0,05

STD1 (1) = metode Bank XYZ saat ini  
 STD2 (2) = arrival rate/service rate

$\hat{\mu}_1 = 8.741667$   
 $\sigma_1 = 3.604386$   
 $n_1 = 120$   
 $\hat{\mu}_2 = 8.941667$   
 $\sigma_2 = 4.121682$   
 $n_2 = 120$

$H_0 : \mu_1 = \mu_2$  ? (null hypothesis, there is no difference)  
 $H_1 : \mu_1 \neq \mu_2$  ? (alternative hypothesis, a difference exists)  
 $\alpha = 0.05$  ? (level of significance for testing this hypothesis)

$\sigma_{x_1-x_2} = 0.499832$   
 $z = -0.400134$



Thus : accept  $H_0$  (no difference between 2 means)  
 with level of significance 0.05

Lampiran 3 : Perhitungan Waktu Antrian (Waiting Time) Dengan Jumlah Teller Sesuai Perhitungan Bank XYZ Saat Ini

NO. CABANG	WIL	TELLER		ARR RATE	STD1				
		AKTUAL	STD1			AVG Q-TIME	PROB BUSY	Q-TIME BUSY	P(Wq>15')
1	JABAR	11	12	199	82.92	0.64	43.88	1.46	0
2	JABAR	24	22	420	95.45	2.30	76.55	3.00	0.52
3	JABAR	8	6	100	83.30	1.76	58.75	3.00	0.4
4	JABAR	18	12	261		not feasible			NA
5	JABAR	10	9	162	90.00	2.28	68.45	3.33	0.76
6	JABAR	10	6	95	79.17	1.20	50.10	2.40	0.1
7	JABAR	9	8	111	69.38	0.32	26.08	1.22	0
8	JABAR	12	10	220		not feasible			NA
9	JABAR	11	7	105	75.00	0.66	38.71	1.71	0.01
10	JABAR	11	8	158	98.75	28.80	95.98	30.00	58.22
11	JABAR	13	8	182		not feasible			NA
12	JATENG	7	5	76	76.00	1.20	47.96	2.50	0.12
13	JATENG	7	7	144		not feasible			NA
14	JATENG	14	9	157	87.22	1.59	60.80	2.61	0.19
15	JATENG	8	6	127		not feasible			NA
16	JATENG	9	6	136		not feasible			NA
17	JATENG	10	4	58	72.50	1.28	46.82	2.73	0.19
18	JATENG	11	9	197		not feasible			NA
19	JATENG	9	6	89	74.17	0.79	40.66	1.94	0.02
20	JATENG	24	20	386	96.50	3.53	82.46	4.29	2.49
21	JATENG	20	16	341		not feasible			NA
22	JATENG	10	7	119	85.00	1.71	59.70	2.86	0.31
23	JATENG	13	8	151	94.38	5.50	82.56	6.67	8.7
24	JATENG	21	15	297	99.00	19.10	95.51	20.00	45.12
25	JATIM-SBY	18	13	280		not feasible			NA
26	JATIM-SBY	13	8	180		not feasible			NA
27	JATIM-SBY	6	5	80	80.00	1.66	55.41	3.00	0.37
28	JATIM-SBY	8	9	196		not feasible			NA
29	JATIM-SBY	8	5	123		not feasible			NA
30	JATIM-SBY	10	8	126	78.75	0.76	43.11	1.76	0.01
31	JATIM-SBY	5	6	106	88.33	3.00	70.04	4.29	2.11
32	JATIM-SBY	8	7	142		not feasible			NA
33	JATIM-SBY	9	7	102	72.86	0.55	34.86	1.58	0
34	JATIM-SBY	10	12	255		not feasible			NA
35	JATIM-SBY	12	14	279	99.64	59.06	98.44	60.00	76.67
36	JATIM-SBY	7	6	90	75.00	0.84	42.17	2.00	0.02
37	JATIM-SBY	15	14	321		not feasible			NA
38	IND-TIMUR	9	4	86		not feasible			NA
39	IND-TIMUR	13	7	161		not feasible			NA
40	IND-TIMUR	25	22	467		not feasible			NA
41	IND-TIMUR	4	4	64	80.00	2.24	59.64	3.75	1.09
42	IND-TIMUR	6	4	76	95.00	13.37	89.14	15.00	32.79
43	IND-TIMUR	7	8	130	81.25	0.97	48.50	2.00	0.03
44	IND-TIMUR	20	11	202	91.82	2.37	71.10	3.33	0.79

NO. CABANG	WIL	TELLER		ARR RATE	STD1				
		AKTUAL	STD1		jumlah	AVG Q-TIME	PROB BUSY	Q-TIME BUSY	P(Wq>15')
45	IND-TIMUR	12	9	193			not feasible		NA
46	IND-TIMUR	12	9	186			not feasible		NA
47	IND-TIMUR	6	3	53	88.33	6.75	78.78	8.57	13.69
48	IND-TIMUR	10	6	96	80.00	1.29	51.78	2.50	0.13
49	IND-TIMUR	10	8	122	76.25	0.60	38.08	1.58	0
50	SUM-MDN	8	7	97	69.29	0.40	28.94	1.40	0
51	SUM-MDN	17	9	179	99.44	58.85	98.09	60.00	76.39
52	SUM-MDN	16	10	193	96.50	7.51	87.61	8.57	15.22
53	SUM-MDN	8	4	65	81.25	2.48	61.91	4.00	1.46
54	SUM-MDN	6	4	49	61.25	0.59	30.32	1.94	0.01
55	SUM-MDN	14	12	268			not feasible		NA
56	SUM-MDN	12	8	174			not feasible		NA
57	SUM-MDN	14	11	207	94.09	3.63	78.59	4.62	3.05
58	SUM-MDN	6	5	71	71.00	0.82	39.39	2.07	0.03
59	SUM-MDN	5	3	51	85.00	4.87	73.04	6.67	7.7
60	SUM-MDN	10	8	135	84.38	1.34	55.74	2.40	0.11
61	SUM-MDN	8	4	66	82.50	2.75	64.22	4.29	1.94
62	SUM-LPG	12	11	243			not feasible		NA
63	SUM-LPG	10	8	131	81.88	1.03	49.94	2.07	0.04
64	SUM-LPG	17	12	245			not feasible		NA
65	SUM-LPG	7	7	104	74.29	0.62	37.40	1.67	0
66	SUM-LPG	22	14	300			not feasible		NA
67	SUM-LPG	13	10	181	90.50	2.16	68.36	3.16	0.59
68	SUM-LPG	7	5	67	67.00	0.60	33.16	1.82	0.01
69	JATIM-MLG	6	6	109	90.83	4.15	76.04	5.45	4.86
70	JATIM-MLG	9	8	130	81.25	0.97	48.50	2.00	0.03
71	JATIM-MLG	5	5	116			not feasible		NA
72	JATIM-MLG	12	9	187			not feasible		NA
73	JATIM-MLG	12	9	182			not feasible		NA
74	JATIM-MLG	18	11	196	89.09	1.57	62.64	2.50	0.16
75	JATIM-MLG	19	14	306			not feasible		NA
76	JATIM-MLG	8	7	112	80.00	1.04	48.59	2.14	0.04
77	JATIM-MLG	9	8	129	80.63	0.91	47.12	1.94	0.02
78	JATIM-MLG	5	5	79	79.00	1.53	53.50	2.86	0.28
79	JATIM-MLG	9	9	145	80.56	0.76	44.45	1.71	0.01
80	JKT-SEL	4	5	71	71.00	0.82	39.39	2.07	0.03
81	JKT-SEL	6	7	146			not feasible		NA
82	JKT-SEL	13	6	143			not feasible		NA
83	JKT-SEL	9	9	135	75.00	0.44	33.04	1.33	0
84	JKT-SEL	9	6	116	96.67	13.64	90.94	15.00	33.46
85	JKT-SEL	25	14	253	90.36	1.39	62.64	2.22	0.07
86	JKT-SEL	17	7	113	80.71	1.11	50.11	2.22	0.06
87	JKT-TIM	10	10	154	77.00	0.45	34.55	1.30	0
88	JKT-TIM	18	12	277			not feasible		NA
89	JKT-TIM	9	9	190			not feasible		NA

NO. CABANG	WIL	TELLER		ARR RATE	STD1				
		AKTUAL	STD1		jumlah	AVG Q-TIME	PROB BUSY	Q-TIME BUSY	P(Wq>15')
90	JKT-TIM	13	8	149	93.13	4.30	78.91	5.45	5.04
91	JKT-TIM	17	12	256			not feasible		NA
92	JKT-TIM	11	9	182			not feasible		NA
93	JKT-TIM	10	12	204	85.00	0.82	49.33	1.67	0.01
94	JKT-TIM	14	12	192	80.00	0.46	36.88	1.25	0
95	JKT-TIM	7	6	125			not feasible		NA
96	JKT-PUS-UTR	8	9	180			not feasible		NA
97	JKT-PUS-UTR	13	12	290			not feasible		NA
98	JKT-PUS-UTR	7	8	171			not feasible		NA
99	JKT-PUS-UTR	10	8	182			not feasible		NA
100	JKT-PUS-UTR	11	9	191			not feasible		NA
101	JKT-PUS-UTR	12	12	275			not feasible		NA
102	JKT-PUS-UTR	14	11	250			not feasible		NA
103	KALIMANTAN	19	13	234	90.00	1.45	62.69	2.31	0.09
104	KALIMANTAN	16	10	220			not feasible		NA
105	KALIMANTAN	4	3	39	65.00	1.20	42.12	2.86	0.22
106	KALIMANTAN	13	10	193	96.50	7.51	87.61	8.57	15.22
107	KALIMANTAN	17	13	280			not feasible		NA
108	KALIMANTAN	9	4	55	68.75	0.98	40.95	2.40	0.08
109	KALIMANTAN	4	3	18	30.00	0.10	7.00	1.43	0
110	JKT-BAR	16	9	208			not feasible		NA
111	JKT-BAR	13	8	168			not feasible		NA
112	JKT-BAR	7	9	167	92.78	3.54	76.60	4.62	2.97
113	JKT-BAR	13	8	189			not feasible		NA
114	JKT-BAR	10	9	159	88.33	1.82	63.80	2.86	0.33
115	JKT-BAR	6	5	103			not feasible		NA
116	JKT-BAR	11	7	147			not feasible		NA
117	JKT-BAR	12	8	200			not feasible		NA
118	JKT-BAR	14	14	292			not feasible		NA
119	JKT-BAR	17	15	327			not feasible		NA
120	JKT-BAR	16	10	186	93.00	3.26	76.07	4.29	2.3
<b>TOTAL</b>		<b>1371</b>	<b>1049</b>						
<b>MEAN (J)</b>		<b>11.43</b>	<b>8.74</b>						
<b>STD DEV (σ)</b>		<b>4.74</b>	<b>3.60</b>						
<b>SIZE (n)</b>		<b>120</b>	<b>120</b>		<b>67</b>				

Summary Hasil Perhitungan Utility Rate- Untuk Jumlah Teller Sesuai Perhitungan Bank XYZ Saat Ini

jumlah dari STD1)	Jumlah	Persentase
< 70%	7	5.83
70% - 80%	15	12.50
80% - 90%	24	20.00
> 90%	21	17.50
not feasible	53	44.17
	120	100

Lampiran 4 : Perhitungan Kebutuhan Teller Dengan Model M/M/s dan *Utility Rate*  $\pm 72,5\%$ 

NO. CABANG	WIL	TELLER			ARR RATE	TELLER (STD 3) -AKYA	STD3-STD1	STD3-AKTUAL	
		AKTUAL	STD 1	STD 2				>=0	<0
1	JABAR	11	12	10	199	14	2	3	
2	JABAR	24	22	21	420	29	7	5	
3	JABAR	8	6	5	100	7	1		-1
4	JABAR	18	12	14	261	18	6	0	
5	JABAR	10	9	9	162	11	2	1	
6	JABAR	10	6	5	95	7	1		-3
7	JABAR	9	8	6	111	8	0		-1
8	JABAR	12	10	11	220	15	5	3	
9	JABAR	11	7	6	105	7	0		-4
10	JABAR	11	8	8	158	11	3	0	
11	JABAR	13	8	10	182	13	5	0	
12	JATENG	7	5	4	76	6	1		-1
13	JATENG	7	7	8	144	10	3	3	
14	JATENG	14	9	8	157	11	2		-3
15	JATENG	8	6	7	127	9	3	1	
16	JATENG	9	6	7	136	10	4	1	
17	JATENG	10	4	3	58	4	0		-6
18	JATENG	11	9	10	197	14	5	3	
19	JATENG	9	6	5	89	6	0		-3
20	JATENG	24	20	20	386	27	7	3	
21	JATENG	20	16	18	341	24	8	4	
22	JATENG	10	7	6	119	8	1		-2
23	JATENG	13	8	8	151	11	3		-2
24	JATENG	21	15	15	297	20	5		-1
25	JATIM-SBY	18	13	14	280	19	6	1	
26	JATIM-SBY	13	8	9	180	12	4		-1
27	JATIM-SBY	6	5	4	80	6	1	0	
28	JATIM-SBY	8	9	10	196	14	5	6	
29	JATIM-SBY	8	5	7	123	9	4	1	
30	JATIM-SBY	10	8	7	126	9	1		-1
31	JATIM-SBY	5	6	6	106	8	2	3	
32	JATIM-SBY	8	7	8	142	10	3	2	
33	JATIM-SBY	9	7	6	102	7	0		-2
34	JATIM-SBY	10	12	13	255	17	5	7	
35	JATIM-SBY	12	14	14	279	19	5	7	
36	JATIM-SBY	7	6	5	90	6	0		-1
37	JATIM-SBY	15	14	17	321	22	8	7	
38	IND-TIMUR	9	4	5	86	6	2		-3
39	IND-TIMUR	13	7	9	161	11	4		-2
40	IND-TIMUR	25	22	24	467	32	10	7	

NO. CABANG	WIL	TELLER			ARR RATE	TELLER (STD 3) -AKYA	STD3-STD1	STD3-AKTUAL >=0	STD3-AKTUAL <0
		AKTUAL	STD 1	STD 2					
41	IND-TIMUR	4	4	4	64	5	1	1	
42	IND-TIMUR	6	4	4	76	6	2	0	
43	IND-TIMUR	7	8	7	130	9	1	2	
44	IND-TIMUR	20	11	11	202	14	3	-6	
45	IND-TIMUR	12	9	10	193	13	4	1	
46	IND-TIMUR	12	9	10	186	13	4	1	
47	IND-TIMUR	6	3	3	53	4	1	-2	
48	IND-TIMUR	10	6	5	96	7	1	-3	
49	IND-TIMUR	10	8	7	122	9	1	-1	
50	SUM-MDN	8	7	5	97	7	0	-1	
51	SUM-MDN	17	9	9	179	12	3	-5	
52	SUM-MDN	16	10	10	193	13	3	-3	
53	SUM-MDN	8	4	4	65	5	1	-3	
54	SUM-MDN	6	4	3	49	4	0	-2	
55	SUM-MDN	14	12	14	268	18	6	4	
56	SUM-MDN	12	8	9	174	12	4	0	
57	SUM-MDN	14	11	11	207	14	3	0	
58	SUM-MDN	6	5	4	71	5	0	-1	
59	SUM-MDN	5	3	3	51	4	1	-1	
60	SUM-MDN	10	8	7	135	9	1	-1	
61	SUM-MDN	8	4	4	66	5	1	-3	
62	SUM-LPG	12	11	13	243	17	6	5	
63	SUM-LPG	10	8	7	131	9	1	-1	
64	SUM-LPG	17	12	13	245	17	5	0	
65	SUM-LPG	7	7	6	104	7	0	0	
66	SUM-LPG	22	14	15	300	20	6	-2	
67	SUM-LPG	13	10	10	181	13	3	0	
68	SUM-LPG	7	5	4	67	5	0	-2	
69	JATIM-MLG	6	6	6	109	8	2	2	
70	JATIM-MLG	9	8	7	130	9	1	0	
71	JATIM-MLG	5	5	6	116	8	3	3	
72	JATIM-MLG	12	9	10	187	13	4	1	
73	JATIM-MLG	12	9	10	182	13	4	1	
74	JATIM-MLG	18	11	10	196	14	3	-4	
75	JATIM-MLG	19	14	16	306	21	7	2	
76	JATIM-MLG	8	7	6	112	8	1	0	
77	JATIM-MLG	9	8	7	129	9	1	0	
78	JATIM-MLG	5	5	4	79	6	1	1	
79	JATIM-MLG	9	9	8	145	10	1	1	
80	JKT-SEL	4	5	4	71	5	0	1	
81	JKT-SEL	6	7	8	146	10	3	4	
82	JKT-SEL	13	6	8	143	10	4	-3	



NO. CABANG	WIL	TELLER			ARR RATE	TELLER (STD 3) -AKYA	STD3-STD1	STD3-AKTUAL	
		AKTUAL	STD 1	STD 2				>=0	<0
83	JKT-SEL	9	9	7	135	9	0	0	
84	JKT-SEL	9	6	6	116	8	2		-1
85	JKT-SEL	25	14	13	253	17	3		-8
86	JKT-SEL	17	7	6	113	8	1		-9
87	JKT-TIM	10	10	8	154	11	1	1	
88	JKT-TIM	18	12	14	277	19	7	1	
89	JKT-TIM	9	9	10	190	13	4	4	
90	JKT-TIM	13	8	8	149	10	2		-3
91	JKT-TIM	17	12	13	256	18	6	1	
92	JKT-TIM	11	9	10	182	13	4	2	
93	JKT-TIM	10	12	11	204	14	2	4	
94	JKT-TIM	14	12	10	192	13	1		-1
95	JKT-TIM	7	6	7	125	9	3	2	
96	JKT-PUS-UTR	8	9	9	180	12	3	4	
97	JKT-PUS-UTR	13	12	15	290	20	8	7	
98	JKT-PUS-UTR	7	8	9	171	12	4	5	
99	JKT-PUS-UTR	10	8	10	182	13	5	3	
100	JKT-PUS-UTR	11	9	10	191	13	4	2	
101	JKT-PUS-UTR	12	12	14	275	19	7	7	
102	JKT-PUS-UTR	14	11	13	250	17	6	3	
103	KALIMANTAN	19	13	12	234	16	3		-3
104	KALIMANTAN	16	10	11	220	15	5		-1
105	KALIMANTAN	4	3	2	39	3	0		-1
106	KALIMANTAN	13	10	10	193	13	3	0	
107	KALIMANTAN	17	13	14	280	19	6	2	
108	KALIMANTAN	9	4	3	55	4	0		-5
109	KALIMANTAN	4	3	1	18	3	0		-1
110	JKT-BAR	16	9	11	208	14	5		-2
111	JKT-BAR	13	8	9	168	12	4		-1
112	JKT-BAR	7	9	9	167	12	3	5	
113	JKT-BAR	13	8	10	189	13	5	0	
114	JKT-BAR	10	9	8	159	11	2	1	
115	JKT-BAR	6	5	6	103	7	2	1	
116	JKT-BAR	11	7	8	147	10	3		-1
117	JKT-BAR	12	8	10	200	14	6	2	
118	JKT-BAR	14	14	15	292	20	6	6	
119	JKT-BAR	17	15	17	327	22	7	5	
120	JKT-BAR	16	10	10	186	13	3		-3
<b>TOTAL</b>		<b>1371</b>	<b>1049</b>	<b>1073</b>		<b>1416</b>	<b>367</b>	<b>166</b>	<b>-121</b>
<b>MEAN (̄)</b>		<b>11.43</b>	<b>8.74</b>	<b>8.94</b>		<b>11.80</b>	<b>3.06</b>		
<b>STD DEV (σ)</b>		<b>4.74</b>	<b>3.60</b>	<b>4.12</b>		<b>5.51</b>			
<b>SIZE (n)</b>		<b>120</b>	<b>120</b>	<b>120</b>		<b>120</b>	<b>120</b>	<b>71</b>	<b>49</b>

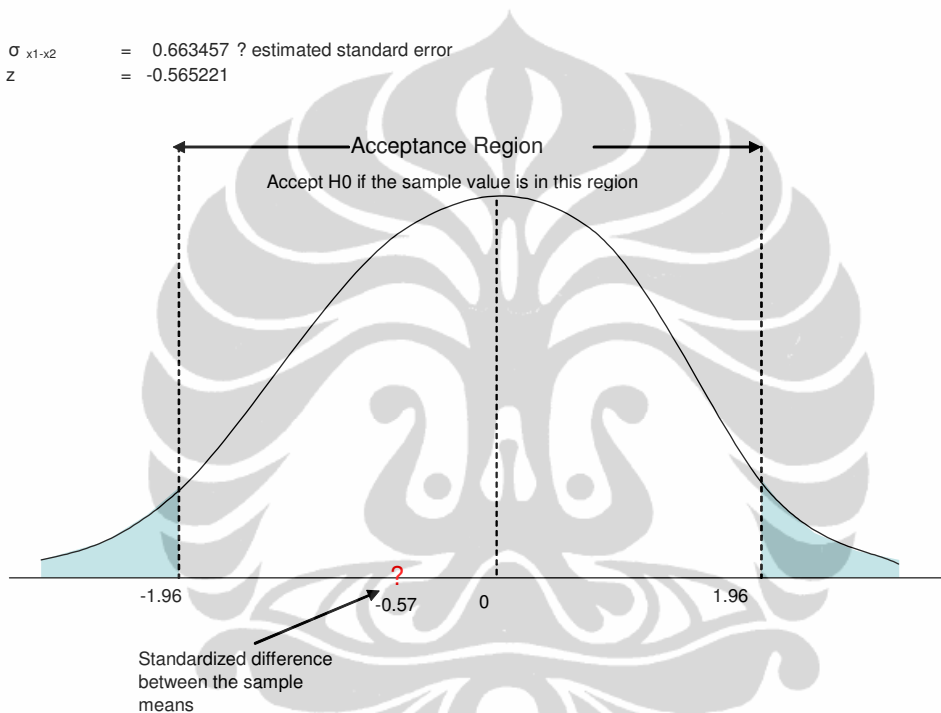
Lampiran 5 : Tes Hipotesis Two-Tailed atas Perbedaan Antara 2 Nilai Rata-rata Pada Tingkat Signifikan 0,05

AKTUAL -1 = jumlah teller aktual yang ada di cabang  
 STD3 (r = 0.725) - 2 = perhitungan dengan model antrian M/M/s dengan utility rate +/- 0,725

$\mu_1 = 11.43$   
 $\sigma_1 = 4.74$   
 $n_1 = 120$   
 $\mu_2 = 11.80$   
 $\sigma_2 = 5.51$   
 $n_2 = 120$

$H_0 : \mu_1 = \mu_2$  ? null hypothesis, there is no difference  
 $H_1 : \mu_1 \neq \mu_2$  ? alternative hypothesis, a difference exists  
 $\alpha = 0.05$  ? level of significance for testing this hypothesis

$\sigma_{x_1-x_2} = 0.663457$  ? estimated standard error  
 $z = -0.565221$



Thus : accept H0 (no difference between 2 means)  
 with level of significance 0.05

Lampiran 6 : Hasil Simulasi Faktor *Leverage* Antrian - *Service Time*

NO. CABANG	WIL	ARR RATE	TELLER AKTUAL	service time = 3 min			service time = 2 min		service time = 2.5 min		service time = 4 min	
				STD2	STD3	1% T	STD2'	STD3'	STD2''	STD3''	STD2'''	STD3'''
1	JABAR	199	11	10	14	14	7	9	9	11	14	18
2	JABAR	420	24	21	29	29	14	19	18	24	28	38
3	JABAR	100	8	5	7	7	4	5	5	6	7	9
4	JABAR	261	18	14	18	18	9	12	11	15	18	24
5	JABAR	162	10	9	11	11	6	8	7	9	11	15
6	JABAR	95	10	5	7	7	4	5	4	6	7	9
7	JABAR	111	9	6	8	8	4	5	5	7	8	10
8	JABAR	220	12	11	15	15	8	10	10	13	15	20
9	JABAR	105	11	6	7	7	4	5	5	6	7	10
10	JABAR	158	11	8	11	11	6	7	7	9	11	15
11	JABAR	182	13	10	13	13	7	8	8	10	13	17
12	JATENG	76	7	4	6	6	3	4	4	5	6	7
13	JATENG	144	7	8	10	10	5	7	6	8	10	13
14	JATENG	157	14	8	11	11	6	7	7	9	11	14
15	JATENG	127	8	7	9	9	5	6	6	7	9	12
16	JATENG	136	9	7	10	10	5	6	6	8	10	13
17	JATENG	58	10	3	4	4	2	3	3	4	4	6
18	JATENG	197	11	10	14	14	7	9	9	11	14	18
19	JATENG	89	9	5	6	6	3	4	4	5	6	8
20	JATENG	386	24	20	27	27	13	18	17	22	26	35
21	JATENG	341	20	18	24	24	12	16	15	19	23	31
22	JATENG	119	10	6	8	8	4	6	5	7	8	11
23	JATENG	151	13	8	11	11	6	7	7	9	11	14
24	JATENG	297	21	15	20	20	10	14	13	17	20	27
25	JATIM-SBY	280	18	14	19	19	10	13	12	16	19	25
26	JATIM-SBY	180	13	9	12	12	6	8	8	10	12	16
27	JATIM-SBY	80	6	4	6	6	3	4	4	5	6	8
28	JATIM-SBY	196	8	10	14	14	7	9	9	11	14	18
29	JATIM-SBY	123	8	7	9	9	5	6	6	7	9	11
30	JATIM-SBY	126	10	7	9	9	5	6	6	7	9	12
31	JATIM-SBY	106	5	6	8	8	4	5	5	6	8	10
32	JATIM-SBY	142	8	8	10	10	5	7	6	8	10	13
33	JATIM-SBY	102	9	6	7	7	4	5	5	6	7	10
34	JATIM-SBY	255	10	13	17	17	9	12	11	15	17	23
35	JATIM-SBY	279	12	14	19	19	10	13	12	16	19	25
36	JATIM-SBY	90	7	5	6	6	3	4	4	5	6	8
37	JATIM-SBY	321	15	17	22	22	11	15	14	18	22	29
38	IND-TIMUR	86	9	5	6	6	3	4	4	5	6	8
39	IND-TIMUR	161	13	9	11	11	6	8	7	9	11	15
40	IND-TIMUR	467	25	24	32	32	16	21	20	26	32	42

NO. CABANG	WIL	ARR RATE	TELLER AKTUAL	service time = 3 min			service time = 2 min		service time = 2.5 min		service time = 4 min	
				STD2	STD3	↓ —	STD2'	STD3'	STD2''	STD3''	STD2'''	STD3'''
41	IND-TIMUR	64	4	4	5	3	3	3	4	5	6	
42	IND-TIMUR	76	6	4	6	3	4	4	5	6	7	
43	IND-TIMUR	130	7	7	9	5	6	6	8	9	12	
44	IND-TIMUR	202	20	11	14	7	9	9	12	14	18	
45	IND-TIMUR	193	12	10	13	7	9	9	11	13	18	
46	IND-TIMUR	186	12	10	13	7	9	8	11	13	17	
47	IND-TIMUR	53	6	3	4	2	3	3	3	4	5	
48	IND-TIMUR	96	10	5	7	4	5	4	6	7	9	
49	IND-TIMUR	122	10	7	9	5	6	6	7	9	11	
50	SUM-MDN	97	8	5	7	4	5	5	6	7	9	
51	SUM-MDN	179	17	9	12	6	8	8	10	12	16	
52	SUM-MDN	193	16	10	13	7	9	9	11	13	18	
53	SUM-MDN	65	8	4	5	3	3	3	4	5	6	
54	SUM-MDN	49	6	3	4	2	3	3	3	4	5	
55	SUM-MDN	268	14	14	18	9	12	12	15	18	24	
56	SUM-MDN	174	12	9	12	6	8	8	10	12	16	
57	SUM-MDN	207	14	11	14	7	10	9	12	14	19	
58	SUM-MDN	71	6	4	5	3	3	3	4	5	7	
59	SUM-MDN	51	5	3	4	2	3	3	3	4	5	
60	SUM-MDN	135	10	7	9	5	6	6	8	9	12	
61	SUM-MDN	66	8	4	5	3	3	3	4	5	6	
62	SUM-LPG	243	12	13	17	9	11	11	14	17	22	
63	SUM-LPG	131	10	7	9	5	6	6	8	9	12	
64	SUM-LPG	245	17	13	17	9	11	11	14	17	22	
65	SUM-LPG	104	7	6	7	4	5	5	6	7	10	
66	SUM-LPG	300	22	15	20	10	14	13	17	20	27	
67	SUM-LPG	181	13	10	13	7	8	8	10	13	17	
68	SUM-LPG	67	7	4	5	3	3	3	4	5	6	
69	JATIM-MLG	109	6	6	8	4	5	5	6	8	10	
70	JATIM-MLG	130	9	7	9	5	6	6	8	9	12	
71	JATIM-MLG	116	5	6	8	4	5	5	7	8	11	
72	JATIM-MLG	187	12	10	13	7	9	8	11	13	17	
73	JATIM-MLG	182	12	10	13	7	8	8	11	13	17	
74	JATIM-MLG	196	18	10	14	7	9	9	11	14	18	
75	JATIM-MLG	306	19	16	21	11	14	13	17	21	28	
76	JATIM-MLG	112	8	6	8	4	5	5	7	8	10	
77	JATIM-MLG	129	9	7	9	5	6	6	8	9	12	
78	JATIM-MLG	79	5	4	6	3	4	4	5	6	7	
79	JATIM-MLG	145	9	8	10	5	7	7	8	10	13	
80	JKT-SEL	71	4	4	5	3	3	3	4	5	7	
81	JKT-SEL	146	6	8	10	5	7	7	9	10	13	
82	JKT-SEL	143	13	8	10	5	7	6	8	10	13	
83	JKT-SEL	135	9	7	9	5	6	6	8	9	12	
84	JKT-SEL	116	9	6	8	4	6	5	7	8	11	
85	JKT-SEL	253	25	13	17	9	12	11	14	17	23	

NO. CABANG	WIL	ARR RATE	TELLER AKTUAL	service time = 3 min			service time = 2 min		service time = 2.5 min		service time = 4 min	
				STD2	STD3	•† <	STD2'	STD3'	STD2''	STD3''	STD2'''	STD3'''
86	JKT-SEL	113	17	6		8	4	5	5	7	8	10
87	JKT-TIM	154	10	8		11	6	7	7	9	11	14
88	JKT-TIM	277	18	14		19	10	13	12	16	19	25
89	JKT-TIM	190	9	10		13	7	9	8	11	13	17
90	JKT-TIM	149	13	8		10	5	7	7	9	10	14
91	JKT-TIM	256	17	13		18	9	12	11	15	18	23
92	JKT-TIM	182	11	10		13	7	8	8	10	13	17
93	JKT-TIM	204	10	11		14	7	9	9	12	14	19
94	JKT-TIM	192	14	10		13	7	9	8	11	13	17
95	JKT-TIM	125	7	7		9	5	6	6	7	9	12
96	JKT-PUS-UTR	180	8	9		12	6	8	8	10	12	16
97	JKT-PUS-UTR	290	13	15		20	10	13	13	17	20	26
98	JKT-PUS-UTR	171	7	9		12	6	8	8	10	12	16
99	JKT-PUS-UTR	182	10	10		13	7	8	8	10	13	17
100	JKT-PUS-UTR	191	11	10		13	7	9	8	11	13	17
101	JKT-PUS-UTR	275	12	14		19	10	13	12	16	19	25
102	JKT-PUS-UTR	250	14	13		17	9	11	11	14	17	23
103	KALIMANTAN	234	19	12		16	8	11	10	13	16	21
104	KALIMANTAN	220	16	11		15	8	10	10	13	15	20
105	KALIMANTAN	39	4	2		3	2	2	2	3	3	4
106	KALIMANTAN	193	13	10		13	7	9	9	11	13	18
107	KALIMANTAN	280	17	14		19	10	13	12	16	19	25
108	KALIMANTAN	55	9	3		4	2	3	3	4	4	5
109	KALIMANTAN	18	4	1		3	1	1	1	1	2	2
110	JKT-BAR	208	16	11		14	7	10	9	12	14	19
111	JKT-BAR	168	13	9		12	6	8	7	10	12	15
112	JKT-BAR	167	7	9		12	6	8	7	10	12	15
113	JKT-BAR	189	13	10		13	7	9	8	11	13	17
114	JKT-BAR	159	10	8		11	6	7	7	9	11	15
115	JKT-BAR	103	6	6		7	4	5	5	6	7	10
116	JKT-BAR	147	11	8		10	5	7	7	9	10	14
117	JKT-BAR	200	12	10		14	7	9	9	11	14	18
118	JKT-BAR	292	14	15		20	10	13	13	17	20	26
119	JKT-BAR	327	17	17		22	11	15	14	19	22	30
120	JKT-BAR	186	16	10		13	7	9	8	11	13	17
<b>TOTAL</b>			<b>1371</b>			<b>1416</b>			<b>948</b>		<b>1177</b>	<b>1862</b>
<b>MEAN (̅)</b>			<b>11.43</b>			<b>11.80</b>			<b>7.90</b>		<b>9.81</b>	<b>15.52</b>
<b>STD DEV (σ)</b>			<b>4.74</b>			<b>5.51</b>			<b>3.71</b>		<b>4.58</b>	<b>7.33</b>
<b>SIZE (n)</b>			<b>120</b>			<b>120</b>			<b>120</b>		<b>120</b>	<b>120</b>

Lampiran 7 : Hasil Simulasi Faktor *Leverage* Antrian - Pemisahan

WIL	ARR RATE	TELLER AKTUAL	TELLER MIX ( $\phi = 20$ )			ARRIVAL RATE PER COUNTER		TELLER PER COUNTER				TOTAL
			STD2	STD3	$\Delta TBA$	SETORAN TUNAI $\leq 10$ JT RP 40%	LAINNYA 60%	SETORAN TUNAI $\leq 10$ JT RP ( $\phi = 30$ )	LAINNYA ( $\phi = 20$ )	STD2-1	STD3-1	
JABAR	199	11	10	14		80	119	3	4	6	8	9
JABAR	420	24	21	29		168	252	6	8	13	17	19
JABAR	100	8	5	7		40	60	2	2	3	4	5
JABAR	261	18	14	18		104	157	4	5	8	11	12
JABAR	162	10	9	11		65	97	3	3	5	7	8
JABAR	95	10	5	7		38	57	2	2	3	4	5
JABAR	111	9	6	8		44	67	2	2	4	5	6
JABAR	220	12	11	15		88	132	3	4	7	9	10
JABAR	105	11	6	7		42	63	2	2	4	5	6
JABAR	158	11	8	11		63	95	3	3	5	7	8
JABAR	182	13	10	13		73	109	3	3	6	8	9
JATENG	76	7	4	6		30	46	1	1	3	4	4
JATENG	144	7	8	10		58	86	2	3	5	6	7
JATENG	157	14	8	11		63	94	3	3	5	7	8
JATENG	127	8	7	9		51	76	2	2	4	6	6
JATENG	136	9	7	10		54	82	2	2	5	6	7
JATENG	58	10	3	4		23	35	1	1	2	2	3
JATENG	197	11	10	14		79	118	3	4	6	8	9
JATENG	89	9	5	6		36	53	2	1	3	4	5
JATENG	386	24	20	27		154	232	6	7	12	16	18
JATENG	341	20	18	24		136	205	5	6	11	14	16
JATENG	119	10	6	8		48	71	2	2	4	5	6
JATENG	151	13	8	11		60	91	2	3	5	7	7
JATENG	297	21	15	20		119	178	4	5	9	12	13
JATIM-SBY	280	18	14	19		112	168	4	5	9	12	13
JATIM-SBY	180	13	9	12		72	108	3	3	6	8	9
JATIM-SBY	80	6	4	6		32	48	2	1	3	4	5
JATIM-SBY	196	8	10	14		78	118	3	4	6	8	9
JATIM-SBY	123	8	7	9		49	74	2	2	4	5	6
JATIM-SBY	126	10	7	9		50	76	2	2	4	6	6
JATIM-SBY	106	5	6	8		42	64	2	2	4	5	6
JATIM-SBY	142	8	8	10		57	85	2	3	5	6	7
JATIM-SBY	102	9	6	7		41	61	2	2	4	4	6
JATIM-SBY	255	10	13	17		102	153	4	5	8	10	12
JATIM-SBY	279	12	14	19		112	167	4	5	9	11	13
JATIM-SBY	90	7	5	6		36	54	2	1	3	4	5
JATIM-SBY	321	15	17	22		128	193	5	6	10	13	15
IND-TIMUR	86	9	5	6		34	52	2	1	3	4	5
IND-TIMUR	161	13	9	11		64	97	3	3	5	7	8
IND-TIMUR	467	25	24	32		187	280	7	9	14	19	21
IND-TIMUR	64	4	4	5		26	38	1	1	2	3	3
IND-TIMUR	76	6	4	6		30	46	1	1	3	4	4
IND-TIMUR	130	7	7	9		52	78	2	2	4	6	6

WIL	ARR RATE	TELLER AKTUAL	TELLER MIX ( $\phi = 20$ )		ARRIVAL RATE PER COUNTER		TELLER PER COUNTER				TOTAL
			STD2	STD3 $\phi = 20$	SETORAN TUNAI $\leq 10$ JT RP 40%	LAINNYA 60%	SETORAN TUNAI $\leq 10$ JT RP ( $\phi = 30$ ) STD2-1	LAINNYA ( $\phi = 20$ ) STD3-1	STD2-2	STD3-2	
IND-TIMUR	202	20	11	14	81	121	3	4	7	8	10
IND-TIMUR	193	12	10	13	77	116	3	4	6	8	9
IND-TIMUR	186	12	10	13	74	112	3	3	6	8	9
IND-TIMUR	53	6	3	4	21	32	1	1	2	2	3
IND-TIMUR	96	10	5	7	38	58	2	2	3	4	5
IND-TIMUR	122	10	7	9	49	73	2	2	4	5	6
SUM-MDN	97	8	5	7	39	58	2	2	3	4	5
SUM-MDN	179	17	9	12	72	107	3	3	6	8	9
SUM-MDN	193	16	10	13	77	116	3	4	6	8	9
SUM-MDN	65	8	4	5	26	39	1	1	2	3	3
SUM-MDN	49	6	3	4	20	29	1	1	2	2	3
SUM-MDN	268	14	14	18	107	161	4	5	9	11	13
SUM-MDN	174	12	9	12	70	104	3	3	6	7	9
SUM-MDN	207	14	11	14	83	124	3	4	7	9	10
SUM-MDN	71	6	4	5	28	43	1	1	3	3	4
SUM-MDN	51	5	3	4	20	31	1	1	2	2	3
SUM-MDN	135	10	7	9	54	81	2	2	5	6	7
SUM-MDN	66	8	4	5	26	40	1	1	2	3	3
SUM-LPG	243	12	13	17	97	146	4	5	8	10	12
SUM-LPG	131	10	7	9	52	79	2	2	4	6	6
SUM-LPG	245	17	13	17	98	147	4	5	8	10	12
SUM-LPG	104	7	6	7	42	62	2	2	4	4	6
SUM-LPG	300	22	15	20	120	180	4	6	9	12	13
SUM-LPG	181	13	10	13	72	109	3	3	6	8	9
SUM-LPG	67	7	4	5	27	40	1	1	2	3	3
JATIM-MLG	109	6	6	8	44	65	2	2	4	5	6
JATIM-MLG	130	9	7	9	52	78	2	2	4	6	6
JATIM-MLG	116	5	6	8	46	70	2	2	4	5	6
JATIM-MLG	187	12	10	13	75	112	3	3	6	8	9
JATIM-MLG	182	12	10	13	73	109	3	3	6	8	9
JATIM-MLG	196	18	10	14	78	118	3	4	6	8	9
JATIM-MLG	306	19	16	21	122	184	5	6	10	13	15
JATIM-MLG	112	8	6	8	45	67	2	2	4	5	6
JATIM-MLG	129	9	7	9	52	77	2	2	4	6	6
JATIM-MLG	79	5	4	6	32	47	2	1	3	4	5
JATIM-MLG	145	9	8	10	58	87	2	3	5	6	7
JKT-SEL	71	4	4	5	28	43	1	1	3	3	4
JKT-SEL	146	6	8	10	58	88	2	3	5	6	7
JKT-SEL	143	13	8	10	57	86	2	3	5	6	7
JKT-SEL	135	9	7	9	54	81	2	2	5	6	7
JKT-SEL	116	9	6	8	46	70	2	2	4	5	6
JKT-SEL	253	25	13	17	101	152	4	5	8	10	12
JKT-SEL	113	17	6	8	45	68	2	2	4	5	6

	WIL	ARR RATE	TELLER AKTUAL	TELLER MIX (U= 20)		ARRIVAL RATE PER COUNTER		TELLER PER COUNTER			
				STD2	STD3	SETORAN TUNAI <=10 JT RP 40%	LAINNYA 60%	SETORAN TUNAI <=10 JT RP (U= 30)		LAINNYA (U= 20)	
								STD2-1	STD3-1	STD2-2	STD3-2
87	JKT-TIM	154	10	8	11	62	92	3	3	5	6
88	JKT-TIM	277	18	14	19	111	166	4	5	9	11
89	JKT-TIM	190	9	10	13	76	114	3	4	6	8
90	JKT-TIM	149	13	8	10	60	89	2	3	5	6
91	JKT-TIM	256	17	13	18	102	154	4	5	8	11
92	JKT-TIM	182	11	10	13	73	109	3	3	6	8
93	JKT-TIM	204	10	11	14	82	122	3	4	7	9
94	JKT-TIM	192	14	10	13	77	115	3	4	6	8
95	JKT-TIM	125	7	7	9	50	75	2	2	4	5
96	JKT-PUS-UTR	180	8	9	12	72	108	3	3	6	8
97	JKT-PUS-UTR	290	13	15	20	116	174	4	5	9	12
98	JKT-PUS-UTR	171	7	9	12	68	103	3	3	6	7
99	JKT-PUS-UTR	182	10	10	13	73	109	3	3	6	8
100	JKT-PUS-UTR	191	11	10	13	76	115	3	4	6	8
101	JKT-PUS-UTR	275	12	14	19	110	165	4	5	9	11
102	JKT-PUS-UTR	250	14	13	17	100	150	4	5	8	10
103	KALIMANTAN	234	19	12	16	94	140	4	4	7	10
104	KALIMANTAN	220	16	11	15	88	132	3	4	7	9
105	KALIMANTAN	39	4	2	3	16	23	1	1	2	2
106	KALIMANTAN	193	13	10	13	77	116	3	4	6	8
107	KALIMANTAN	280	17	14	19	112	168	4	5	9	12
108	KALIMANTAN	55	9	3	4	22	33	1	1	2	2
109	KALIMANTAN	18	4	1	3	7	11	1	1	1	1
110	JKT-BAR	208	16	11	14	83	125	3	4	7	9
111	JKT-BAR	168	13	9	12	67	101	3	3	6	7
112	JKT-BAR	167	7	9	12	67	100	3	3	5	7
113	JKT-BAR	189	13	10	13	76	113	3	4	6	8
114	JKT-BAR	159	10	8	11	64	95	3	3	5	7
115	JKT-BAR	103	6	6	7	41	62	2	2	4	4
116	JKT-BAR	147	11	8	10	59	88	2	3	5	6
117	JKT-BAR	200	12	10	14	80	120	3	4	6	8
118	JKT-BAR	292	14	15	20	117	175	4	5	9	12
119	JKT-BAR	327	17	17	22	131	196	5	6	10	13
120	JKT-BAR	186	16	10	13	74	112	3	3	6	8
<b>TOTAL</b>			<b>1371</b>	<b>1416</b>							
<b>MEAN (U)</b>			<b>11.43</b>	<b>11.80</b>							
<b>STD DEV (σ)</b>			<b>4.74</b>	<b>5.51</b>							
<b>SIZE (n)</b>			<b>120</b>	<b>120</b>							



Lampiran 8 : Hasil Simulasi Faktor Leverage Antrian - Jumlah Teller S

HOUR	MINGGU I					MINGGU II					MINGGU III					TXN	ARR																																																		
	TXN	ARR	TELLER	U	Wq	TXN	ARR	TELLER	U	Wq	TXN	ARR	TELLER	U	Wq																																																				
<b>2 JUN 2008 (SENIN)</b>																	<b>9 JUN 2008 (SENIN)</b>																	<b>16 JUN 2008 (SENIN)</b>																	<b>23 JUN 2008 (SENIN)</b>																
8	335	268	18	74.40	0.11	399	319	18	88.61	0.76	227	182	13	70.00	0.13	437	350																																																		
9	530	424	22	96.36	3.04	472	73	19	99.47	29.19	530	424	22	96.36	3.04	390	312																																																		
10	545	436	22	99.09	14.25	417	334	18	92.78	1.56	517	414	21	98.57	9.24	433	346																																																		
11	422	338	18	93.89	1.97	355	284	18	78.89	0.20	381	305	18	84.72	0.44	411	329																																																		
12	311	249	17	73.24	0.11	284	227	16	70.94	0.09	288	230	16	71.88	0.10	223	178																																																		
13	325	260	18	72.22	0.08	334	267	18	74.17	0.11	312	250	17	73.53	0.11	300	240																																																		
14	373	298	18	82.78	0.34	303	242	17	71.18	0.08	349	279	18	77.50	0.17	337	270																																																		
15	178	142	10	71.00	0.25	123	98	7	70.00	0.43	203	162	11	73.64	0.27	59	47																																																		
AVERAGE		302	20	75.50			231	18	74.72			281	19	73.95			259																																																		
TOTAL	3019					2687					2807					2590																																																			
<b>3 JUN 2008 (SELASA)</b>																	<b>10 JUN 2008 (SELASA)</b>																	<b>17 JUN 2008 (SELASA)</b>																	<b>24 JUN 2008 (SELASA)</b>																
8	326	261	18	72.50	0.09	297	238	16	74.38	0.14	247	198	14	70.71	0.12	255	204																																																		
9	458	366	19	96.32	3.52	434	347	18	96.39	3.82	435	348	18	96.67	4.20	308	246																																																		
10	416	333	18	92.50	1.48	481	385	20	96.25	3.25	504	403	21	95.95	2.80	441	353																																																		
11	366	293	18	81.39	0.28	327	262	18	72.78	0.09	317	254	17	74.71	0.13	318	254																																																		
12	276	221	15	73.67	0.15	331	265	18	73.61	0.10	282	226	16	70.63	0.09	322	258																																																		
13	319	255	17	75.00	0.14	283	226	16	70.63	0.09	274	219	15	73.00	0.14	344	275																																																		
14	272	218	15	72.67	0.13	343	274	18	76.11	0.14	321	257	18	71.39	0.07	323	258																																																		
15	20	16				15	12				36	29				16	13																																																		
AVERAGE		245	17	72.06			251	17	73.82			242	17	71.18			233																																																		
TOTAL	2453					2511					2416					2327																																																			
<b>4 JUN 2008 (RABU)</b>																	<b>11 JUN 2008 (RABU)</b>																	<b>18 JUN 2008 (RABU)</b>																	<b>25 JUN 2008 (RABU)</b>																
8	263	210	14	75.00	0.20	267	214	15	71.33	0.11	258	206	14	73.57	0.17	225	180																																																		
9	368	294	18	81.67	0.29	404	323	18	89.72	0.91	437	350	18	97.22	5.20	422	338																																																		
10	414	331	18	91.94	1.33	378	302	18	83.89	0.39	312	250	17	73.53	0.11	412	330																																																		
11	366	293	18	81.39	0.28	274	219	15	73.00	0.14	256	205	14	73.21	0.16	267	214																																																		
12	288	230	16	71.88	0.10	213	170	12	70.83	0.17	243	194	17	74.62	0.22	295	236																																																		
13	297	238	16	74.38	0.14	276	221	15	73.67	0.15	289	231	16	72.19	0.11	311	249																																																		
14	282	226	16	70.63	0.09	269	215	15	71.67	0.12	263	210	14	75.00	0.20	277	222																																																		
15	37	30				7	6				40	32				160	128																																																		
AVERAGE		232	16	72.50			209	14	74.64			210	14	75			237																																																		
TOTAL	2315					2088					2098					2369																																																			
<b>5 JUN 2008 (KAMIS)</b>																	<b>12 JUN 2008 (KAMIS)</b>																	<b>19 JUN 2008 (KAMIS)</b>																	<b>26 JUN 2008 (KAMIS)</b>																
8	286	229	16	71.56	0.10	251	201	14	71.79	0.14	203	162	11	73.64	0.27	353	282																																																		
9	362	290	18	80.56	0.25	399	319	18	88.61	0.76	322	258	18	71.67	0.08	450	360																																																		
10	439	351	18	97.50	5.86	405	324	18	90.00	0.95	304	243	17	71.47	0.09	384	307																																																		
11	341	273	18	75.83	0.13	294	235	16	73.44	0.13	430	344	18	95.56	2.97	320	256																																																		
12	236	189	13	72.69	0.18	191	153	11	69.55	0.17	274	219	15	73.00	0.14	202	162																																																		
13	325	260	18	72.22	0.08	271	217	15	72.39	0.13	289	231	16	72.19	0.11	320	256																																																		
14	259	207	14	73.93	0.18	335	268	18	74.44	0.11	415	332	18	92.22	1.40	265	212																																																		
15	41	33				81	65				374	299	18	83.06	0.35	28	22																																																		
AVERAGE		229	16	72.50			223	15	74.33			261	18	72.5			232																																																		
TOTAL	2289					2227					2611					2322																																																			
<b>6 JUN 2008 (JUMAT)</b>																	<b>13 JUN 2008 (JUMAT)</b>																	<b>20 JUN 2008 (JUMAT)</b>																	<b>27 JUN 2008 (JUMAT)</b>																
8	267	214	15	71.33	0.11	260	208	14	74.29	0.18	220	176	12	73.33	0.22	256	205																																																		
9	382	306	18	85.00	0.45	392	314	18	87.22	0.62	416	333	18	92.50	1.48	352	282																																																		
10	397	318	18	88.33	0.73	450	360	19	94.74	2.25	340	272	18	75.56	0.13	425	340																																																		
11	275	220	15	73.33	0.14	383	306	18	85.00	0.45	330	264	18	73.33	0.10	343	274																																																		
12	236	189	13	72.69	0.18	193	154	11	70.00	0.18	296	237	16	74.06	0.14	332	266																																																		
13	360	288	18	80.00	0.23	278	222	15	74.00	0.15	316	253	17	74.41	0.13	292	234																																																		
14	248	198	14	70.71	0.12	203	162	11	73.64	0.27	283	226	16	78.63	0.09	290	232																																																		
15	56	45				28	22				28	22				72	58																																																		
AVERAGE		222	15	74.00			219	15	73			223	15	74.33			236																																																		
TOTAL	2221					2187					2229					2362																																																			

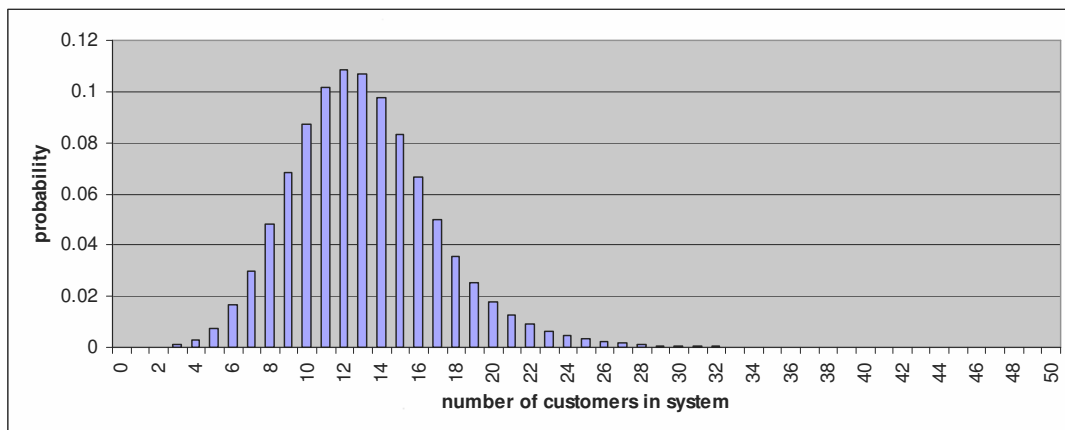
Lampiran 9 : Template Model Antrian M/M/c

DATA/INPUT	
arrival rate ( )	256
service rate ( )	20
number of servers (s)	18
average service time	3

RESULTS/OUTPUT	TIME (MINUTES)	PERCENTAGE
average server utilization ( )	0.7111111111	71.11
average number of customers in the queue (Lq)	0.30402465	
average number of customers in the system (Ls)	13.10402465	
average waiting time in the queue (Wq)	0.001187596	0.07
average time in the system (Ws)	0.051187596	3.07
probability (% of time) system is empty (P <sub>0</sub> )	2.68531E-06	0.00
probability of n>=s customers in the system (P(n>=s))	0.123510014	12.35
mean time customer spends in queue for a busy system (Wb)	0.009615385	0.58

Probability of Wq>t (P(Wq>t)) when t= 6.31024E-13 0.00 100.00  
0.25

n	P(n)	
0	2.68531E-06	1
1	3.4372E-05	12.8
2	0.000219981	81.92
3	0.000938584	349.5253333
4	0.003003469	1118.481067
5	0.007688882	2863.311531
6	0.016402948	6108.397932
7	0.029993961	11169.64193
8	0.047990338	17871.42709
9	0.068252925	25417.14075
10	0.087363744	32533.94017
11	0.10165963	37857.67583
12	0.108436938	40381.52088
13	0.106768678	39760.26672
14	0.097617077	36352.24386
15	0.083299906	31020.58142
16	0.066639924	24816.46514
17	0.050175943	18685.33846
18	0.035680671	0
19	0.025372921	0
20	0.018042966	0
21	0.012830554	0
22	0.009123949	0
23	0.006488142	0
24	0.00461379	0
25	0.003280917	0
26	0.002333097	0
27	0.001659091	0
28	0.001179798	0
29	0.000838967	0
30	0.000596599	0
31	0.000424248	0
32	0.000301688	0
33	0.000214533	0
34	0.000152557	0
35	0.000108485	0
36	7.71449E-05	0
37	5.48586E-05	0
38	3.90106E-05	0
39	2.77409E-05	0
40	1.97268E-05	0
41	1.4028E-05	0
42	9.97544E-06	0
43	7.09365E-06	0
44	5.04437E-06	0
45	3.58711E-06	0
46	2.55083E-06	0
47	1.81393E-06	0
48	1.2899E-06	0
49	9.17264E-07	0
50	6.52277E-07	0



**Lampiran 10 : Rumus Perhitungan Kebutuhan Teller PT. Bank XYZ Saat Ini (Existing )**

$$\begin{aligned} \text{TELLER} &= \text{Teller Deposit} + \text{Teller Kliring} + \text{Teller Transfer} + \text{Teller Pickup} \\ 1.1. \text{ T. Deposit} &= \frac{[(\text{Tab} + \text{Giro} + \text{Sber}) - (\text{Jml Teller Prioritas} \times 62\% \times 85)]}{121} - \frac{\text{Tab Pbk}}{500} \\ 1.2. \text{ T. Kliring} &= \frac{(\text{KK-WD}) - (\text{Jml Teller Prioritas} \times 19\% \times 85)}{345} \\ 1.3. \text{ T. Transfer} &= \frac{(\text{KUK} + \text{INK} + \text{OR} + \text{BN} + \text{PJK}) - (\text{Jml Teller Prioritas} \times 19\% \times 85)}{145} \\ 1.4. \text{ T. Pickup} &= \frac{\text{Jml Lokasi Pickup}}{8} \end{aligned}$$

Keterangan :

Tab = tabungan  
 Giro = giro  
 Sber = setoran berita  
 KK = kliring keluar  
 WD = warkat debet  
 KUK = kiriman uang keluar  
 INK = inkaso  
 OR = outward remittance  
 BN = banknote  
 PJK = pajak