LAMPIRAN

LAMPIRAN A

Data persediaan produk di gudang selama bulan Juli hingga bulan September.

No	Kode Produk	Bulan Juli minggu ke- (unit/minggu)				Bulan Agustus minggu ke- (unit/minggu)				Bulan September minggu ke- (unit/minggu)				Rata-rata barang disimpan (unit/minggu)
		I	**II**	**III**	**IV**	**I**	**II**	**III**	**IV**	**I**	**II**	**III**	**IV**	
1	Celana Panjang PDL biasa	55	45	35	20	0	187	167	145	130	105	70	22	82
2	Celana Panjang PDL potong	48	38	28	18	3	191	149	117	107	92	60	40	75
3	Rain coatmodel jacket	80	50	20	5	195	185	160	130	120	105	85	50	90
4	Rain coatmodel sweater	42	32	17	2	179	159	134	124	114	89	79	54	84
5	Ransel ukuran 60 liter	15	5	81	69	69	53	48	48	48	38	20	10	29
6	Ransel ukuran 80 liter	79	74	47	47	30	20	15	0	77	67	50	15	52
7	Ransel ukuran 100 liter	49	49	34	24	14	4	69	64	49	39	22	12	31
8	Sleeping bag model mummy	45	20	0	145	135	135	135	95	80	60	35	35	53
9	Sleeping bag model tikar	141	104	84	52	10	10	10	120	105	78	58	26	67
10	Day pack ukuran 25 liter	9	74	74	64	29	29	14	4	79	49	27	12	42
11	Day pack ukuran 40 liter	30	0	0	60	30	30	15	5	76	56	46	16	49
12	Day pack tempat laptop	92	82	82	72	42	42	12	0	70	40	30	10	38
13	Jacket	151	116	85	40	20	10	185	142	102	82	62	20	67
14	Sepatu model 1	32	5	0	0	0	95	85	73	73	58	38	26	49
15	Sepatu model 2	35	5	0	0	0	90	80	68	68	58	46	24	49
16	Matras	115	85	65	50	5	175	145	125	85	55	45	30	54
17	Sendal gunung model 1	12	303	288	262	232	212	167	157	117	77	52	15	65
18	Sendal gunung model 2	0	310	290	260	235	215	205	190	160	110	70	20	90
19	Sendal gunung model 3	10	280	265	235	210	190	175	150	125	95	70	30	80
Total rata-rata barang yang disimpan (unit/minggu)														**1.143**

LAMPIRAN B

Data kerusakan produk selama bulan Juli hingga bulan September.

No	Kode Produk	Bulan Juli minggu ke-(unit/minggu)				Bulan Agustus minggu ke-(unit/minggu)				Bulan September minggu ke-(unit/minggu)				Rata-rata kerusakan barang (unit/minggu)
		I	**II**	**III**	**IV**	**I**	**II**	**III**	**IV**	**I**	**II**	**III**	**IV**	
1	Celana Panjang PDL biasa	0	0	0	0	0	0	0	0	0	0	0	0	0,00
2	Celana Panjang PDL potong	0	1	0	0	0	0	0	0	0	0	0	0	0,08
3	Rain coatmodel jacket	0	0	1	0	0	1	0	0	0	0	0	0	0,17
4	Rain coatmodel sweater	0	0	0	0	0	0	0	0	1	0	0	0	0,08
5	Ransel ukuran 60 liter	0	0	0	0	0	0	1	0	0	0	0	0	0,08
6	Ransel ukuran 80 liter	0	0	0	0	0	0	0	0	0	0	0	0	0,00
7	Ransel ukuran 100 liter	0	0	0	0	0	0	0	1	0	0	0	0	0,08
8	Sleeping bag model mummy	0	0	0	0	0	0	0	0	0	0	0	0	0,00
9	Sleeping bag model tikar	0	0	0	0	0	0	0	0	0	0	0	0	0,00
10	Day pack ukuran 25 liter	0	1	0	0	0	0	0	0	0	0	0	0	0,08
11	Day pack ukuran 40 liter	0	0	0	0	0	0	0	0	0	0	0	0	0,00
12	Day pack tempat laptop	0	0	0	0	0	0	0	0	0	0	0	0	0,00
13	Jacket	0	0	0	0	0	0	0	0	0	0	0	1	0,08
14	Sepatu model 1	0	0	0	0	0	0	0	0	0	0	0	0	0,00
15	Sepatu model 2	0	0	0	0	0	0	0	0	0	0	0	0	0,00
16	Matras	0	0	0	0	0	0	0	0	0	0	0	0	0,00
17	Sendal gunung model 1	0	0	0	0	0	0	0	0	0	0	0	0	0,00
18	Sendal gunung model 2	0	0	0	0	0	0	0	0	0	0	0	0	0,00
19	Sendal gunung model 3	0	0	0	0	0	0	0	0	0	0	0	0	0,00

LAMPIRAN C

Data lead time produksi dalam 10 kali produksi terakhir. (data yang dapat dikumpulkan dari perusahaan)

No	Produk	Lead Time (hari)									
		1	2	3	4	5	6	7	8	9	10
1	Celana Panjang PDL biasa	10	18	7	6	5	10	9	7	8	10
2	Celana Panjang PDL potong	15	10	12	18	8	9	7	5	7	8
3	Rain coatmodel jacket	18	10	8	14	12	5	8	10	7	8
4	Rain coatmodel sweater	10	9	8	18	10	12	8	4	7	10
5	Ransel ukuran 60 liter	8	5	6	7	18	10	7	10	8	5
6	Ransel ukuran 80 liter	7	18	6	12	10	7	8	10	6	7
7	Ransel ukuran 100 liter	8	10	14	18	15	10	8	10	9	8
8	Sleeping bag model mummy	16	18	10	15	10	8	7	6	8	10
9	Sleeping bag model tikar	10	7	8	17	10	12	10	18	15	10
10	Day pack ukuran 25 liter	12	10	8	8	16	15	8	10	8	10
11	Day pack ukuran 40 liter	10	15	10	12	18	10	7	8	8	8
12	Day pack tempat laptop	8	10	12	10	8	7	9	10	15	8
13	Jacket	12	8	10	12	14	10	12	10	18	10

LAMPIRAN D

Safety factors, Demand Probabilities, and Partial Expectations

k	F'(k)	E(k)
0,00	0,5000	0,3989
0,10	0,4602	0,3509
0,20	0,4207	0,3069
0,30	0,3821	0,2668
0,40	0,3446	0,2304
0,50	0,3085	0,1978
0,60	0,2743	0,1687
0,70	0,242	0,1429
0,80	0,2119	0,1202
0,90	0,1841	0,1004
1,00	0,1587	0,0833
1,10	0,1357	0,0686
1,20	0,1151	0,0561
1,30	0,0968	0,0455
1,40	0,0808	0,0367
1,50	0,0668	0,0293
1,60	0,0548	0,0232
1,70	0,0446	0,0183
1,80	0,0359	0,0143
1,90	0,0287	0,0111
2,00	0,0228	0,0085
2,10	0,0179	0,0065
2,20	0,0139	0,0049
2,30	0,0107	0,0037
2,40	0,0082	0,0027
2,50	0,0062	0,0020
2,60	0,0047	0,0015
2,70	0,0035	0,0011
2,80	0,0026	0,0008
2,90	0,0019	0,0005
3,00	0,0016	0,0004

LAMPIRAN E

Output StatFit hasil *fitting* distribusi permintaan

1. Celana Panjang PDL biasa

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-12.1, 4.84, 31.6]	100	do not reject
Pearson 5[-26., 16.2, 724]	92.4	do not reject
Lognormal[-16.8, 3.6, 0.318]	86.8	do not reject
Inverse Gaussian[-18.1, 405, 39.9]	82.7	do not reject
Erlang[-7.46, 6., 4.86]	78.8	do not reject
Gamma[-7.46, 5.48, 5.33]	72.9	do not reject
Extreme Value IA[16., 9.95]	51.5	do not reject
Johnson SU[7.17, 12.4, -1.44, 1.66]	45.4	do not reject
Weibull[-2.02, 1.96, 26.8]	37.2	do not reject
Chi Squared[-48.5, 70.2]	23.6	do not reject
Pearson 6[0., 69.3, 5.3, 17.3]	20.8	do not reject
Logistic[20.6, 6.89]	16.3	do not reject
Beta[0., 7.94e+004, 4., 1.4e+004]	11.8	do not reject
Normal[21.7, 12.6]	3.69	do not reject
Triangular[-2.15, 62.9, 10.]	2.22	do not reject

```
Normal
   mean          =                    21.72
   sigma         =                    12.6349
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.174
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          8.51e-002
      result                           DO NOT REJECT

Erlang
   minimum       =                    -7.45941
   m             =                    6.
   beta          =                    4.86311
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.124
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.393
      result                           DO NOT REJECT
```

2. Celana Panjang PDL potong

Auto::Fit of Distributions

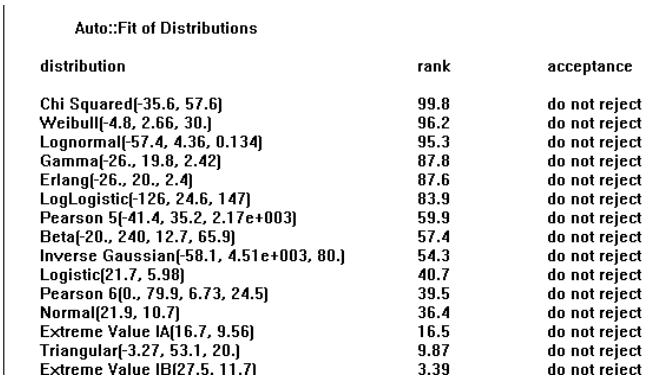
distribution	rank	acceptance
LogLogistic[-16.1, 6.93, 32.3]	95.4	do not reject
Erlang[-13., 13., 2.34]	70.5	do not reject
Pearson 5[-27.7, 28.6, 1.25e+003]	66.4	do not reject
Lognormal[-26., 3.75, 0.196]	66.2	do not reject
Chi Squared[-18.6, 36.]	64.7	do not reject
Gamma[-13., 12.4, 2.44]	59.5	do not reject
Weibull[-2.97, 2.49, 22.9]	30.9	do not reject
Inverse Gaussian[-27.2, 1.21e+003, 44.6]	30.1	do not reject
Logistic[16.8, 4.82]	19.5	do not reject
Extreme Value IA[13.3, 7.41]	16.	do not reject
Normal[17.4, 8.61]	10.6	do not reject

```
Normal
   mean          =                    17.38
   sigma         =                    8.61369
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.169
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
```

```
      p-value                          0.103
      result                           DO NOT REJECT

Erlang
   minimum       =                    -13.0073
   m             =                    13.
   beta          =                    2.33746
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.154
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.169
      result                           DO NOT REJECT
```

3. Rain coat model jacket



Auto::Fit of Distributions

distribution	rank	acceptance
Chi Squared(-35.6, 57.6)	99.8	do not reject
Weibull(-4.8, 2.66, 30.)	96.2	do not reject
Lognormal(-57.4, 4.36, 0.134)	95.3	do not reject
Gamma(-26., 19.8, 2.42)	87.8	do not reject
Erlang(-26., 20., 2.4)	87.6	do not reject
LogLogistic(-126, 24.6, 147)	83.9	do not reject
Pearson 5(-41.4, 35.2, 2.17e+003)	59.9	do not reject
Beta(-20., 240, 12.7, 65.9)	57.4	do not reject
Inverse Gaussian(-58.1, 4.51e+003, 80.)	54.3	do not reject
Logistic(21.7, 5.98)	40.7	do not reject
Pearson 6(0., 79.9, 6.73, 24.5)	39.5	do not reject
Normal(21.9, 10.7)	36.4	do not reject
Extreme Value IA(16.7, 9.56)	16.5	do not reject
Triangular(-3.27, 53.1, 20.)	9.87	do not reject
Extreme Value IB(27.5, 11.7)	3.39	do not reject

```
Normal
   mean          =                    21.94
   sigma         =                    10.6778
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.132
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.319
      result                           DO NOT REJECT

Gamma
   minimum       =                    -26.0213
   alpha         =                    19.8423
   beta          =                    2.41778
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.117
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.469
      result                           DO NOT REJECT
```

4. Rain coat model sweater

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-158, 29.9, 176]	97.5	do not reject
Lognormal[-79.9, 4.59, 0.107]	95.6	do not reject
Weibull[-6.4, 2.54, 28.5]	90.3	do not reject
Chi Squared[-38.5, 57.5]	89.7	do not reject
Gamma[-38.4, 28.7, 2.]	88.9	do not reject
Erlang[-38.4, 29., 1.98]	87.4	do not reject
Johnson SU[8.35, 30.1, -1.04, 3.16]	56.4	do not reject
Logistic[18.7, 5.92]	50.5	do not reject
Inverse Gaussian[-80.3, 8.69e+003, 99.3]	49.6	do not reject
Pearson 5[-44.2, 34.9, 2.14e+003]	45.4	do not reject
Normal[18.9, 10.6]	28.7	do not reject
Extreme Value IA[13.7, 9.64]	8.71	do not reject
Pearson 6[0., 70.7, 7.51, 26.3]	8.57	reject
Triangular[-5.07, 51.8, 15.]	4.4	do not reject

```
Normal
   mean          =                    18.94
   sigma         =                    10.614
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.16
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.137
      result                           DO NOT REJECT
   Anderson-Darling
      data points                      50
      ad stat                          0.884
      alpha                            5.e-002
      ad stat(50,5.e-002)              2.49
      p-value                          0.424
      result                           DO NOT REJECT

Gamma
   minimum       =                    -38.4031
   alpha         =                    28.7458
   beta          =                    1.9954
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.143
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.233
      result                           DO NOT REJECT
```

5. Ransel ukuran 60 liter

Auto::Fit of Distributions

distribution	rank	acceptance
Erlang[-43.2, 68., 0.749]	82.1	do not reject
Gamma[-43.2, 68., 0.749]	81.2	do not reject
LogLogistic[-151, 42.6, 158]	73.8	do not reject
Chi Squared[-11.4, 19.1]	29.2	reject
Normal[7.7, 6.18]	24.8	do not reject
Johnson SU[226, 1.16e+003, 35.8, 192]	21.8	do not reject
Rayleigh[-3.48, 9.04]	21.2	reject
Logistic[7.5, 3.75]	21.1	do not reject
Lognormal[-13.3, 3., 0.303]	20.2	reject
Extreme Value IB[10.8, 6.01]	20.	do not reject

```
Normal
   mean          =                    7.7
   sigma         =                    6.18142
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.174
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          8.69e-002
```

```
      result                                DO NOT REJECT
Erlang
   minimum       =                        -43.2174
   m             =                        68.
   beta          =                        0.748794
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.179
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             7.17e-002
      result                              DO NOT REJECT
```

6. Ransel ukuran 80 liter

Auto::Fit of Distributions

distribution	rank	acceptance
Rayleigh[-2.83, 9.26]	98.9	do not reject
Chi Squared[-11.1, 19.8]	97.1	do not reject
Lognormal[-16.9, 3.21, 0.245]	76.2	do not reject
Inverse Gaussian[-15.1, 326, 23.8]	67.	do not reject
Gamma[-21.7, 24.3, 1.25]	64.9	do not reject
Erlang[-21.7, 25., 1.21]	56.6	do not reject
LogLogistic[-87.5, 26.4, 95.9]	47.8	do not reject
Pearson 5[-16.8, 16.4, 393]	46.8	do not reject
Johnson SU[-11.8, 10.6, -5.08, 3.67]	29.8	do not reject
Weibull[-0.86, 1.41, 10.4]	20.	reject
Logistic[8.47, 3.64]	15.6	do not reject
Normal[8.7, 6.23]	15.5	do not reject
Extreme Value IA[5.69, 5.3]	12.8	do not reject
Extreme Value IB[11.9, 6.49]	5.7	reject
Triangular[-2.54e-003, 26.7, -1.47e-003]	4.21	do not reject

```
Normal
   mean          =                        8.7
   sigma         =                        6.22977
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.184
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             5.98e-002
      result                              DO NOT REJECT

Gamma
   minimum       =                        -21.6692
   alpha         =                        24.3451
   beta          =                        1.24773
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.172
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             9.08e-002
      result                              DO NOT REJECT
```

7. Ransel ukuran 100 liter

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-60.7, 17.1, 70.4]	56.9	do not reject
Inverse Gaussian[-22.7, 636, 32.6]	50.1	do not reject
Normal[9.9, 7.31]	37.	do not reject
Logistic[9.78, 4.11]	27.	do not reject
[illegible]	[illegible]	[illegible]

```
Normal
   mean          =                        9.9
   sigma         =                        7.31369
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.165
```

```
      alpha                              5.e-002
      ks stat(50,5.e-002)                0.188
      p-value                            0.115
      result                             DO NOT REJECT
```

8. Sleeping bag model mummy

Auto::Fit of Distributions

distribution	rank	acceptance
Lognormal(-54.5, 4.32, 0.18)	100	do not reject
Gamma(-42., 21.7, 2.95)	87.9	do not reject
Pearson 5(-59.2, 34.7, 2.73e+003)	87.5	do not reject
Erlang(-42., 22., 2.91)	84.7	do not reject
Chi Squared(-73., 95.)	75.3	do not reject
Weibull(-5.39, 2.07, 30.9)	70.	do not reject
LogLogistic(-179, 25.4, 200)	61.4	do not reject
Rayleigh(-4.87, 21.4)	60.4	do not reject
Inverse Gaussian(-52.6, 2.14e+003, 74.6)	42.8	do not reject
Normal(22., 13.8)	33.1	do not reject
Logistic(21.6, 7.96)	31.3	do not reject
Extreme Value IA(15.2, 11.8)	20.3	do not reject
Extreme Value IB(29.1, 14.7)	6.53	do not reject

```
Normal
   mean          =                    22.
   sigma         =                    13.8203
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.134
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.305
      result                           DO NOT REJECT

Gamma
   minimum       =                    -41.9582
   alpha         =                    21.6514
   beta          =                    2.95469
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.116
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.472
      result                           DO NOT REJECT
```

9. Sleeping bag model tikar

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic(-342, 63., 362)	98.1	do not reject
Weibull(-17.6, 4.1, 41.3)	48.7	do not reject
Lognormal(-1.92e+003, 7.57, 5.31e-003)	46.7	do not reject
Logistic(19.9, 5.75)	38.9	do not reject
Johnson SU(20.8, 17.5, 8.05e-002, 1.92)	34.6	do not reject
Beta(-43.3, 61.9, 14.3, 9.53)	20.2	do not reject
Normal(19.9, 10.3)	16.5	do not reject

```
Normal
   mean          =                    19.9
   sigma         =                    10.3194
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.177
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          7.55e-002
      result                           DO NOT REJECT

Beta
   minimum       =                    -43.2985
```

```
   maximum       =                       61.8751
   p             =                       14.343
   q             =                       9.52645
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.174
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             8.42e-002
      result                              DO NOT REJECT
```

10. Day pack ukuran 25 liter

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-341, 53.9, 357]	87.6	do not reject
Gamma[-101, 105, 1.11]	72.1	do not reject
Erlang[-101, 106, 1.1]	69.5	do not reject
Chi Squared[-49.1, 64.8]	61.2	do not reject
Lognormal[-73., 4.48, 0.127]	56.9	do not reject
Inverse Gaussian[-63.2, 3.79e+003, 78.9]	42.6	do not reject
Logistic[15.5, 6.66]	41.5	do not reject
Pearson 5[-46.7, 30.2, 1.83e+003]	37.5	do not reject
Johnson SU[25.7, 332, 0.878, 29.4]	31.1	do not reject
Normal[15.7, 11.3]	30.9	do not reject
Rayleigh[-5.58, 17.]	26.7	do not reject
Power Function[-0.833, 40.8, 0.683]	6.61	do not reject
Extreme Value IB[21.4, 11.1]	5.87	do not reject
Extreme Value IA[10.1, 9.83]	5.73	do not reject

```
Normal
   mean          =                       15.7
   sigma         =                       11.2699
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.138
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             0.269
      result                              DO NOT REJECT

Gamma
   minimum       =                       -100.509
   alpha         =                       104.713
   beta          =                       1.11011
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.142
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             0.24
      result                              DO NOT REJECT
```

11. Day pack ukuran 40 liter

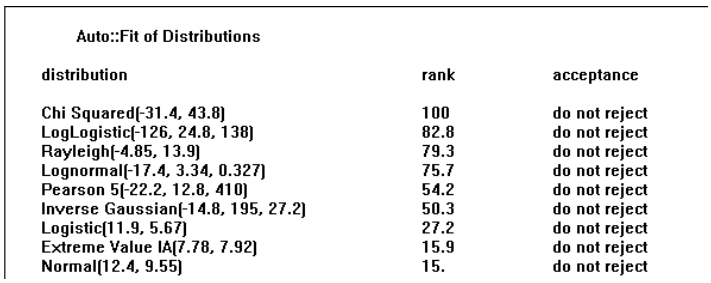
Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-117, 24.9, 128]	79.7	do not reject
Chi Squared[-25.5, 36.1]	40.	do not reject
Logistic[10.3, 5.18]	33.1	do not reject
Pearson 5[-22.1, 14.6, 445]	22.7	do not reject
Normal[10.7, 8.72]	22.5	do not reject
Rayleigh[-4.81, 12.6]	16.8	reject
Inverse Gaussian[-8.1, 66.8, 18.8]	10.3	reject
Extreme Value IA[6.49, 7.18]	5.83	do not reject
Extreme Value IB[15.2, 8.9]	5.56	do not reject
Power Function[-1.25, 31.3, 0.684]	4.85	do not reject

```
Normal
   mean          =                       10.7
   sigma         =                       8.71837
   Kolmogorov-Smirnov
      data points                         50
```

```
      ks stat                          0.15
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.189
      result                           DO NOT REJECT
```

12. Day pack tempat laptop

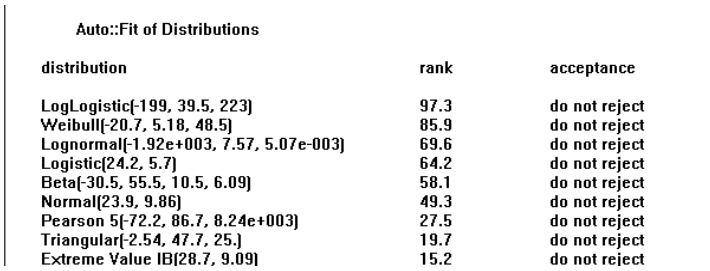


Auto::Fit of Distributions

distribution	rank	acceptance
Chi Squared[-31.4, 43.8]	100	do not reject
LogLogistic[-126, 24.8, 138]	82.8	do not reject
Rayleigh[-4.85, 13.9]	79.3	do not reject
Lognormal[-17.4, 3.34, 0.327]	75.7	do not reject
Pearson 5[-22.2, 12.8, 410]	54.2	do not reject
Inverse Gaussian[-14.8, 195, 27.2]	50.3	do not reject
Logistic[11.9, 5.67]	27.2	do not reject
Extreme Value IA[7.78, 7.92]	15.9	do not reject
Normal[12.4, 9.55]	15.	do not reject

```
Normal
   mean          =                  12.4
   sigma         =                  9.55196
   Kolmogorov-Smirnov
      data points                    50
      ks stat                        0.179
      alpha                          5.e-002
      ks stat(50,5.e-002)            0.188
      p-value                        7.09e-002
      result                         DO NOT REJECT
```

13. Jacket



Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic[-199, 39.5, 223]	97.3	do not reject
Weibull[-20.7, 5.18, 48.5]	85.9	do not reject
Lognormal[-1.92e+003, 7.57, 5.07e-003]	69.6	do not reject
Logistic[24.2, 5.7]	64.2	do not reject
Beta[-30.5, 55.5, 10.5, 6.09]	58.1	do not reject
Normal[23.9, 9.86]	49.3	do not reject
Pearson 5[-72.2, 86.7, 8.24e+003]	27.5	do not reject
Triangular[-2.54, 47.7, 25.]	19.7	do not reject
Extreme Value IB[28.7, 9.09]	15.2	do not reject

```
Normal
   mean          =                  23.9
   sigma         =                  9.86357
   Kolmogorov-Smirnov
      data points                    50
      ks stat                        0.126
      alpha                          5.e-002
      ks stat(50,5.e-002)            0.188
      p-value                        0.371
      result                         DO NOT REJECT

Beta
   minimum       =                  -30.4613
   maximum       =                  55.4769
   p             =                  10.49
   q             =                  6.09393
   Kolmogorov-Smirnov
      data points                    50
      ks stat                        0.118
      alpha                          5.e-002
      ks stat(50,5.e-002)            0.188
      p-value                        0.451
      result                         DO NOT REJECT
```

14. Sepatu model 1

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic(-168, 46.5, 177)	84.2	do not reject
Gamma(-48.5, 78.5, 0.729)	73.4	do not reject
Erlang(-48.5, 80., 0.715)	68.1	do not reject
Lognormal(-35.5, 3.78, 0.146)	45.2	do not reject
Inverse Gaussian(-29.6, 1.32e+003, 38.3)	36.7	do not reject
Logistic(8.63, 3.79)	31.8	do not reject
Normal(8.68, 6.44)	30.8	do not reject
Extreme Value IB(11.9, 6.49)	30.6	do not reject
Chi Squared(-12.6, 21.3)	27.3	do not reject
Pearson 5(-29., 33.5, 1.23e+003)	24.7	do not reject
Rayleigh(-3.33, 9.64)	24.	do not reject

```
Normal
   mean          =                    8.68
   sigma         =                    6.43565
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.151
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.183
      result                           DO NOT REJECT

Gamma
   minimum       =                    -48.5484
   alpha         =                    78.4928
   beta          =                    0.729302
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.157
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.154
      result                           DO NOT REJECT
```

15. Sepatu mode 2

Auto::Fit of Distributions

distribution	rank	acceptance
LogLogistic(-132, 31.9, 141)	75.9	do not reject
Gamma(-35.1, 35.7, 1.27)	59.4	do not reject
Erlang(-35.1, 36., 1.26)	57.9	do not reject
Inverse Gaussian(-23.7, 638, 33.8)	44.7	do not reject
Chi Squared(-18.9, 29.)	34.5	do not reject
Logistic(10., 4.39)	32.1	do not reject
Lognormal(-27.7, 3.61, 0.202)	28.	reject
Rayleigh(-3.93, 11.3)	27.6	reject
Normal(10.1, 7.61)	27.6	do not reject
Johnson SU(1.14e+003, 3.91e+003, 151, 529)	23.8	do not reject

```
Normal
   mean          =                    10.14
   sigma         =                    7.61055
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.163
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.123
      result                           DO NOT REJECT

Gamma
   minimum       =                    -35.0923
   alpha         =                    35.7456
```

```
   beta          =                       1.26573
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.174
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             8.48e-002
      result                              DO NOT REJECT
```

16. Matras

Auto::Fit of Distributions

distribution	rank	acceptance
Lognormal(-68.2, 4.5, 0.131)	97.1	do not reject
Erlang(-44., 31., 2.16)	92.	do not reject
Gamma(-44., 31., 2.16)	90.6	do not reject
Weibull(-6.15, 2.59, 32.7)	89.6	do not reject
Chi Squared(-49.9, 72.8)	85.5	do not reject
LogLogistic(-185, 30.6, 207)	70.5	do not reject
Pearson 5(-44.6, 29.8, 1.95e+003)	59.2	do not reject
Inverse Gaussian(-67.9, 5.18e+003, 90.8)	42.3	do not reject
Pearson 6(0., 88., 6.37, 24.)	34.2	do not reject
Logistic(22.4, 6.84)	34.1	do not reject
Triangular(-4.18, 54.3, 20.)	32.8	do not reject
Johnson SU(1.87e+003, 4.06e+003, 164, 373)	27.1	do not reject
Normal(22.9, 12.)	24.5	do not reject
Extreme Value IA(17., 10.7)	14.2	do not reject
Beta(0., 863., 4.96, 171)	9.42	do not reject

```
Normal
   mean          =                       22.9
   sigma         =                       12.0037
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.155
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             0.16
      result                              DO NOT REJECT

Erlang
   minimum       =                       -43.9841
   m             =                       31.
   beta          =                       2.15752
   Kolmogorov-Smirnov
      data points                         50
      ks stat                             0.133
      alpha                               5.e-002
      ks stat(50,5.e-002)                 0.188
      p-value                             0.309
      result                              DO NOT REJECT
```

17. Sendal gunung model 1

Auto::Fit of Distributions

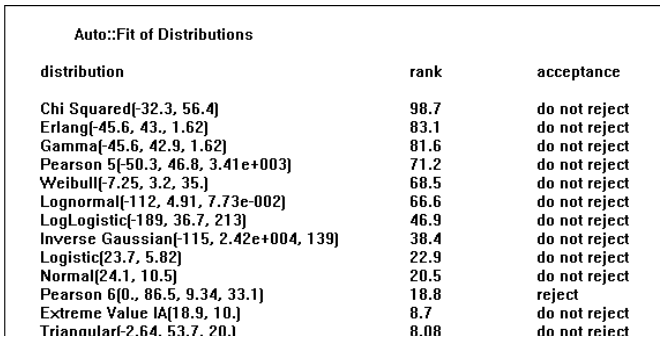
distribution	rank	acceptance
Pearson 5(-47.7, 65.7, 4.18e+003)	91.6	do not reject
Erlang(-29.6, 34., 1.36)	78.7	do not reject
Gamma(-29.6, 33.8, 1.37)	76.3	do not reject
Chi Squared(-17.3, 34.2)	73.9	do not reject
LogLogistic(-123, 32.9, 140)	71.5	do not reject
Lognormal(-90., 4.67, 7.32e-002)	69.6	do not reject
Weibull(-5.49, 3.02, 24.8)	42.4	do not reject
Inverse Gaussian(-93.1, 2.17e+004, 110)	41.	do not reject
Logistic(16.6, 4.23)	31.9	do not reject
Johnson SU(15.6, 10.7, -0.144, 1.64)	27.	do not reject
Normal(16.8, 7.84)	19.1	do not reject
Extreme Value IA(12.9, 7.53)	13.4	do not reject

```
Normal
   mean          =                       16.78
   sigma         =                       7.83911
   Kolmogorov-Smirnov
```

```
      data points                          50
      ks stat                              0.181
      alpha                                5.e-002
      ks stat(50,5.e-002)                  0.188
      p-value                              6.72e-002
      result                               DO NOT REJECT

Erlang
   minimum       =                        -29.5655
   m             =                        34.
   beta          =                        1.36309
   Kolmogorov-Smirnov
      data points                          50
      ks stat                              0.165
      alpha                                5.e-002
      ks stat(50,5.e-002)                  0.188
      p-value                              0.116
      result                               DO NOT REJECT
```

18. Sendal gunung model 2



Auto::Fit of Distributions

distribution	rank	acceptance
Chi Squared(-32.3, 56.4)	98.7	do not reject
Erlang(-45.6, 43., 1.62)	83.1	do not reject
Gamma(-45.6, 42.9, 1.62)	81.6	do not reject
Pearson 5(-50.3, 46.8, 3.41e+003)	71.2	do not reject
Weibull(-7.25, 3.2, 35.)	68.5	do not reject
Lognormal(-112, 4.91, 7.73e-002)	66.6	do not reject
LogLogistic(-189, 36.7, 213)	46.9	do not reject
Inverse Gaussian(-115, 2.42e+004, 139)	38.4	do not reject
Logistic(23.7, 5.82)	22.9	do not reject
Normal(24.1, 10.5)	20.5	do not reject
Pearson 6(0., 86.5, 9.34, 33.1)	18.8	reject
Extreme Value IA(18.9, 10.)	8.7	do not reject
Triangular(-2.64, 53.7, 20.)	8.08	do not reject

```
Normal
   mean          =                       24.14
   sigma         =                       10.5186
   Kolmogorov-Smirnov
      data points                          50
      ks stat                              0.173
      alpha                                5.e-002
      ks stat(50,5.e-002)                  0.188
      p-value                              8.85e-002
      result                               DO NOT REJECT

Erlang
   minimum       =                       -45.5709
   m             =                       43.
   beta          =                       1.62116
   Kolmogorov-Smirnov
      data points                          50
      ks stat                              0.155
      alpha                                5.e-002
      ks stat(50,5.e-002)                  0.188
      p-value                              0.161
      result                               DO NOT REJECT
```

19. Sendal gunung model 3

Auto::Fit of Distributions

distribution	rank	acceptance
Chi Squared(-36.9, 58.6)	100.	do not reject
Gamma(-30.7, 23.5, 2.23)	98.7	do not reject
Lognormal(-53.6, 4.31, 0.143)	96.5	do not reject
Weibull(-4.62, 2.6, 29.6)	92.8	do not reject
Erlang(-30.7, 24., 2.18)	92.8	do not reject
LogLogistic(-141, 26.5, 162)	91.6	do not reject
Inverse Gaussian(-53.6, 3.65e+003, 75.2)	63.	do not reject
Pearson 5(-33.9, 24.6, 1.32e+003)	56.	do not reject
Logistic(21.3, 6.17)	46.6	do not reject
Normal(21.7, 10.8)	38.5	do not reject
Triangular(-2.53, 52.8, 15.)	24.4	do not reject
Extreme Value IA(16.4, 9.56)	18.	do not reject
Pearson 6(0., 69.3, 6.45, 20.8)	12.8	do not reject
Beta(0., 399, 4.75, 79.1)	7.45	do not reject
Extreme Value IB(27.3, 11.5)	3.54	do not reject

```
Normal
   mean          =                    21.68
   sigma         =                    10.7934
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.122
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.415
      result                           DO NOT REJECT

Gamma
   minimum       =                    -30.6912
   alpha         =                    23.458
   beta          =                    2.23315
   Kolmogorov-Smirnov
      data points                      50
      ks stat                          0.105
      alpha                            5.e-002
      ks stat(50,5.e-002)              0.188
      p-value                          0.601
      result                           DO NOT REJECT
```

LAMPIRAN F

Lampiran F-1

Contoh *output* WinQSB (peramalan seluruh metode untuk produk Sleeping bag model Mummy)

Forecast Result for SB-M													
12-13-200	Actual	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by	Forecast by
Week	Data	SA	3-MA	4-MA	5-MA	6-MA	7-MA	8-MA	SES	SEST	DES	DEST	LR
1	35												28,98824
2	45	35							35	35	35	35	28,703
3	20	40							45	45	45	45	28,41777
4	50	33,33333	33,33333						20	20	20	20	28,13253
5	40	37,5	38,33333	37,5					50	50	50	50	27,8473
6	60	38	36,66667	38,75	38				40	40	40	40	27,56207
7	25	41,66667	50	42,5	43	41,66667			60	60	60	60	27,27683
8	35	39,28571	41,66667	43,75	39	40	39,28571		25	25	25	25	26,9916
9	25	38,75	40	40	42	38,33333	39,28571	38,75	35	35	35	35	26,70636
10	20	37,22222	28,33333	36,25	37	39,16667	36,42857	37,5	25	25	25	25	26,42113
11	15	35,5	26,66667	26,25	33	34,16667	36,42857	34,375	20	20	20	20	26,13589
12	0	33,63636	20	23,75	24	30	31,42857	33,75	15	15	15	15	25,85066
13	15	30,83333	11,66667	15	19	20	25,71428	27,5	0	0	0	0	25,56543
14	15	29,61539	10	12,5	15	18,33333	19,28572	24,375	15	15	15	15	25,28019
15	25	28,57143	10	11,25	13	15	17,85714	18,75	15	15	15	15	24,99496
16	15	28,33333	18,33333	13,75	14	15	16,42857	18,75	25	25	25	25	24,70972
17	10	27,5	18,33333	17,5	14	14,16667	15	16,25	15	15	15	15	24,42449
18	20	26,47059	16,66667	16,25	16	13,33333	13,57143	14,375	10	10	10	10	24,13926
19	30	26,11111	15	17,5	17	16,66667	14,28571	14,375	20	20	20	20	23,85402
20	10	26,31579	20	18,75	20	19,16667	18,57143	16,25	30	30	30	30	23,56879
21	15	25,5	20	17,5	17	18,33333	17,85714	17,5	10	10	10	10	23,28355
22	40	25	18,33333	18,75	17	16,66667	17,85714	17,5	15	15	15	15	22,99832
23	0	25,68182	21,66667	23,75	23	20,83333	20	20,625	40	40	40	40	22,71309
24	15	24,56522	18,33333	16,25	19	19,16667	17,85714	17,5	0	0	0	0	22,42785
25	35	24,16667	18,33333	17,5	16	18,33333	18,57143	17,5	15	15	15	15	22,14262
26	30	24,6	16,66667	22,5	21	19,16667	20,71428	20,625	35	35	35	35	21,85738
27	25	24,80769	26,66667	20	24	22,5	20,71428	21,875	30	30	30	30	21,57215
28	10	24,81482	30	26,25	21	24,16667	22,85714	21,25	25	25	25	25	21,28691
29	15	24,28572	21,66667	25	23	19,16667	22,14286	21,25	10	10	10	10	21,00168
30	40	23,96552	16,66667	20	23	21,66667	18,57143	21,25	15	15	15	15	20,71645
31	15	24,5	21,66667	22,5	24	25,83333	24,28572	21,25	40	40	40	40	20,43121
32	35	24,19355	23,33333	20	21	22,5	24,28572	23,125	15	15	15	15	20,14598
33	0	24,53125	30	26,25	23	23,33333	24,28572	25,625	35	35	35	35	19,86074
34	10	23,78788	16,66667	22,5	21	19,16667	20	21,25	0	0	0	0	19,57551
35	30	23,38235	15	15	20	19,16667	17,85714	18,75	10	10	10	10	19,29028
36	15	23,57143	13,33333	18,75	18	21,66667	20,71428	19,375	30	30	30	30	19,00504
37	15	23,33333	18,33333	13,75	18	17,5	20,71428	20	15	15	15	15	18,71981
38	20	23,10811	20	17,5	14	17,5	17,14286	20	15	15	15	15	18,43457
39	0	23,02632	16,66667	20	18	15	17,85714	17,5	20	20	20	20	18,14934
40	25	22,4359	11,66667	12,5	16	15	12,85714	15,625	0	0	0	0	17,86411
41	40	22,5	15	15	15	17,5	16,42857	14,375	25	25	25	25	17,57887
42	20	22,92683	21,66667	21,25	20	19,16667	20,71428	19,375	40	40	40	40	17,29364
43	10	22,85714	28,33333	21,25	21	20	19,28572	20,625	20	20	20	20	17,0084
44	0	22,55814	23,33333	23,75	19	19,16667	18,57143	18,125	10	10	10	10	16,72317
45	0	22,04545	10	17,5	19	15,83333	16,42857	16,25	0	0	0	0	16,43793
46	40	21,55556	3,333333	7,5	14	15,83333	13,57143	14,375	0	0	0	0	16,1527
47	15	21,95652	13,33333	12,5	14	18,33333	19,28572	16,875	40	40	40	40	15,86747
48	20	21,80851	18,33333	13,75	13	14,16667	17,85714	18,75	15	15	15	15	15,58223
49	25	21,77083	25	18,75	15	14,16667	15	18,125	20	20	20	20	15,297
50	30	21,83673	20	25	20	16,66667	15,71429	16,25	25	25	25	25	15,01177

51		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	14,72653
52		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	14,4413
53		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	14,15606
54		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	13,87083
55		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	13,5856
56		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	13,30036
57		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	13,01513
58		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	12,72989
59		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	12,44466
60		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	12,15942
61		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	11,87419
62		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	11,58896
63		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	11,30372
64		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	11,01849
65		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	10,73325
66		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	10,44802
67		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	10,16279
68		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	9,877552
69		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	9,592318
70		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	9,307083
71		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	9,02185
72		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	8,736615
73		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	8,451381
74		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	8,166147
75		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	7,880913
76		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	7,595679
77		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	7,310445
78		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	7,02521
79		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	6,739976
80		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	6,454742
81		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	6,169508
82		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	5,884274
83		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	5,59904
84		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	5,313806
85		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	5,028572
86		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	4,743338
87		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	4,458104
88		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	4,17287
89		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	3,887636
90		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	3,602401
91		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	3,317167
92		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	3,031933
93		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	2,746699
94		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	2,461465
95		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	2,176231
96		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	1,890997
97		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	1,605763
98		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	1,320529
99		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	1,035295
100		22	25	22,5	26	21,66667	18,57143	17,5	30	30	30	30	0,7500606
CFE		-273,7186	-8,333334	-33,75	-41	-72,49998	-68,57142	-77,5	-5	-5	-5	-5	-1,62E-05
MAD		12,51837	11,87943	11,71196	11,53333	11,42046	11,69435	11,60714	14,79592	14,79592	14,79592	14,79592	11,03953
MSE		211,3763	219,208	204,6535	191,9778	183,8226	193,7114	197,9725	322,9592	322,9592	322,9592	322,9592	174,0571
MAPE		56,67874	47,64906	45,59747	45,41575	47,13763	48,41468	47,56283	64,86619	64,86619	64,86619	64,86619	43,94287
Trk.Signal		-21,86535	-0,7014925	-2,88167	-3,554913	-6,348257	-5,863636	-6,676923	-0,337931	-0,337931	-0,337931	-0,337931	-1,47E-06
R-square		0,3401286	0,4425623	0,4041728	0,3512285	0,3985704	0,3234577	0,2749934					8,87E-02
			m=3	m=4	m=5	m=6	m=7	m=8	Alpha=1	Alpha=1	Alpha=1	Alpha=1	Y-intercept=29,2735
									F(0)=35	Beta=0	F(0)=35	F(0)=35	Slope=-0,2852
										F(0)=35	F'(0)=35	F'(0)=35	
										T(0)=0			

Lampiran F-2

Contoh *output* WinQSB (peramalan metode terpilih untuk produk Sleeping bag model Mummy)

Forecast Result for SB-M									
	Actual	**Forecast by**	Forecast	CFE	MAD	MSE	MAPE (%)	Tracking	R-square
Week	Data	**5-MA**	Error					Signal	
1	35								
2	45								
3	20								
4	50								
5	40								
6	60	38	22	22	22	484	36,6667	1	
7	25	43	-18	4	20	404	54,3333	0,2	0,0335
8	35	39	-4	0	14,6667	274,6667	40,0317	0	0,0215
9	25	42	-17	-17	15,25	278,25	47,0238	-1,1148	0,109
10	20	37	-17	-34	15,6	280,4	54,619	-2,1795	0,2505
11	15	33	-18	-52	16	287,6667	65,5159	-3,25	0,3969
12	0	24	-24	-76	17,1429	328,8571	65,5159	-4,4333	0,5189
13	15	19	-4	-80	15,5	289,75	59,966	-5,1613	0,6077
14	15	15	0	-80	13,7778	257,5555	52,4702	-5,8065	0,6954
15	25	13	12	-68	13,6	246,2	51,9735	-5	0,7319
16	15	14	1	-67	12,4545	223,9091	47,4429	-5,3796	0,7919
17	10	14	-4	-71	11,75	206,5833	46,7662	-6,0426	0,8307
18	20	16	4	-67	11,1538	191,9231	44,5357	-6,0069	0,8497
19	30	17	13	-54	11,2857	190,2857	44,4432	-4,7848	0,8078
20	10	20	-10	-64	11,2	184,2667	48,4116	-5,7143	0,803
21	15	17	-2	-66	10,625	173	46,073	-6,2118	0,8171
22	40	17	23	-43	11,3529	193,9412	46,7872	-3,7876	0,6921
23	0	23	-23	-66	12	212,5556	46,7872	-5,5	0,6401
24	15	19	-4	-70	11,5789	202,2105	45,6036	-6,0455	0,6469
25	35	16	19	-51	11,95	210,15	46,086	-4,2678	0,5955
26	30	21	9	-42	11,8095	204	45,2393	-3,5565	0,574
27	25	24	1	-41	11,3182	194,7727	43,1774	-3,6225	0,5704
28	10	21	-11	-52	11,3043	191,5652	46,3594	-4,6	0,5633
29	15	23	-8	-60	11,1667	186,25	46,6764	-5,3731	0,5661
30	40	23	17	-43	11,4	190,36	46,4948	-3,7719	0,5037
31	15	24	-9	-52	11,3077	186,1538	47,0575	-4,5986	0,5055
32	35	21	14	-38	11,4074	186,5185	46,7752	-3,3312	0,4765
33	0	23	-23	-61	11,8214	198,75	46,7752	-5,1601	0,448
34	10	21	-11	-72	11,7931	196,069	49,207	-6,1053	0,4473
35	30	20	10	-62	11,7333	192,8667	48,619	-5,2841	0,4328
36	15	18	-3	-65	11,4516	186,9355	47,5969	-5,6761	0,4364
37	15	18	-3	-68	11,1875	181,375	46,6453	-6,0782	0,4398
38	20	14	6	-62	11,0303	176,9697	46,0905	-5,6209	0,4489
39	0	18	-18	-80	11,2353	181,2941	46,0905	-7,1204	0,4323
40	25	16	9	-71	11,1714	178,4286	45,765	-6,3555	0,4301
41	40	15	25	-46	11,5556	190,8333	46,2879	-3,9808	0,3981
42	20	20	0	-46	11,2432	185,6757	44,8853	-4,0913	0,3985
43	10	21	-11	-57	11,2368	183,9737	46,8004	-5,0726	0,3959
44	0	19	-19	-76	11,4359	188,5128	46,8004	-6,6457	0,3823
45	0	19	-19	-95	11,625	192,825	46,8004	-8,172	0,3733
46	40	14	26	-69	11,9756	204,6098	47,3204	-5,7617	0,3462
47	15	14	1	-68	11,7143	199,7619	46,1911	-5,8049	0,3519
48	20	13	7	-61	11,6047	196,2558	45,8887	-5,2565	0,3582
49	25	15	10	-51	11,5682	194,0682	45,7337	-4,4086	0,3585
50	30	20	10	-41	11,5333	191,9778	45,4158	-3,5549	0,3512

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98		26							
99		26							
100		26							
CFE		-41							
MAD		11,5333							
MSE		191,9778							
MAPE		45,4158							
Trk.Signal		-3,5549							
R-square		0,3512							
		m=5							

Lampiran F-3

Rangkuman hasil peramalan semua metode untuk masing-masing produk

No	Kode Produk	SA		MA (3)		MA (4)		MA (5)		MA (6)		MA (7)		MA (8)		SES		SEST		DES		DEST		LR		
		MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	MAD	Trk. Signal	r square
1	Sp-1	5,645	-5,062	6,773	-1,821	6,174	-0,162	6,164	1,330	5,705	0,175	5,767	0,149	**5,655**	0,619	5,388	-12,250	5,388	-12,250	5,388	-12,250	5,388	-12,250	5,410	-2,820E-06	0,003
2	Sp-2	6,365	-12,594	7,518	-3,104	6,750	-1,333	6,418	0,312	5,992	-1,502	5,940	-1,154	**5,732**	-1,483	5,980	1,171	5,980	1,171	5,980	1,171	5,980	1,171	5,938	-3,292E-06	0,038
3	M	9,998	-0,648	10,390	-2,406	9,728	-1,799	10,133	-1,776	9,830	-0,424	9,734	0,881	**9,702**	1,675	10,207	-5,940	10,151	-3,439	10,065	-5,693	10,164	-2,294	9,464	5,039E-06	0,004
4	S-01	6,436	4,387	7,794	2,780	6,734	2,042	**6,307**	2,378	6,322	4,086	6,336	5,524	6,497	4,906	6,442	17,191	6,348	12,519	6,430	17,808	6,372	16,255	5,907	-8,718E-06	0,014
5	S-02	**8,836**	-0,277	8,979	5,569	8,815	5,672	9,036	4,095	8,614	5,031	8,355	5,728	8,586	6,042	8,950	0,438	8,765	7,401	9,009	0,437	8,903	5,490	7,905	4,102E-06	0,034
6	S-03	9,450	-7,064	10,340	0,645	9,625	1,429	9,871	0,507	9,871	0,675	10,013	-0,713	9,774	-0,384	9,597	-6,217	9,165	4,783	**9,451**	-3,417	9,522	0,246	8,788	0,000E+00	0,006
7	SB-M	12,518	-21,865	11,879	-0,701	11,712	-2,882	**11,533**	-3,555	11,420	-6,348	11,694	-5,864	11,607	-6,677	14,796	-0,338	14,796	-0,338	14,796	-0,338	14,796	-0,338	11,040	-1,469E-06	0,089
8	SB-T	8,130	-15,440	8,298	-2,009	8,533	-1,758	**8,267**	-3,629	7,803	-4,699	8,123	-5,012	8,140	-6,527	8,878	27,598	8,878	27,598	8,878	27,598	8,878	27,598	7,549	0,000E+00	0,069
9	RC-01	9,344	-14,235	**9,156**	-3,459	9,712	-2,703	9,298	-2,796	8,890	-4,031	9,196	-3,418	8,958	-5,163	8,429	11,508	8,429	11,508	8,429	11,508	8,429	11,508	8,442	4,519E-07	0,048
10	R-100	5,967	-9,175	6,702	-1,741	6,114	0,204	6,467	-0,773	6,231	0,936	**6,096**	2,460	6,116	2,146	8,673	-1,729	8,673	-1,729	8,673	-1,729	8,673	-1,729	5,576	3,079E-06	0,002
11	RC-02	8,844	-23,112	8,482	-3,144	8,761	-4,566	8,031	-4,109	**8,212**	-3,856	8,468	-4,808	8,229	-3,266	12,143	-0,412	12,143	-0,412	12,143	-0,412	12,143	-0,412	7,776	-2,453E-07	0,080
12	CP-01	10,340	-1,755	11,050	1,508	11,353	1,211	11,431	0,350	10,580	2,442	10,369	2,824	**10,238**	1,709	9,429	9,121	9,429	9,121	9,429	9,121	9,429	9,121	9,647	1,977E-07	0,000
13	Jacket	8,281	-9,974	9,858	-1,691	9,130	-0,821	8,511	-0,117	**8,049**	1,760	8,189	1,832	8,318	-0,225	8,953	-7,818	8,953	-7,818	9,012	-6,434	9,142	0,095	7,857	-1,699E-06	0,011
14	CP-02	7,228	-9,787	8,092	-3,089	7,522	-3,656	6,973	-2,151	**6,288**	1,060	6,482	0,771	6,420	-1,071	6,953	-2,842	6,953	-2,842	7,033	-1,799	6,978	-1,047	6,900	6,357E-06	0,001
15	R-80	5,500	6,243	6,064	2,474	5,435	0,460	5,400	-0,185	5,417	1,846	**5,199**	3,709	5,283	2,248	5,612	32,964	5,612	32,964	5,612	32,964	5,612	32,964	5,169	1,107E-06	0,008
16	DP-L	8,195	-16,199	8,298	-0,402	7,636	-2,128	7,489	-1,469	7,311	1,368	7,392	0,676	**6,815**	-1,834	7,473	-7,610	7,444	4,118	7,335	-5,986	7,761	0,896	7,735	1,110E-06	0,015
17	R-60	5,568	-9,131	**5,213**	-0,959	5,571	-1,122	5,600	-2,500	5,284	-1,104	5,349	0,267	5,313	-1,529	6,327	1,581	6,327	1,581	6,327	1,581	6,327	1,581	5,205	-5,497E-07	0,067

LAMPIRAN G

Model ini sama untuk seluruh item produk produksi perusahaan, dengna melakukan perubahan pada parameter-perameternya: distribusi permintaan, on hand inventory, lead time, batas minimum persediaan dan ukuran produksi.
(Contoh Input model simulasi metode pengendalian perusahaan saat ini untuk item Sleeping bag model mummy)

```
*****************************************************************************
*                                                                           *
*                        Formatted Listing of Model:                        *
*       D:\My document\TA-mad3-new\bab5\Model skarang\8.SB-M(sQ)NOW.MOD      *
*                                                                           *
*****************************************************************************
  Time Units:                       Minutes
  Distance Units:                   Feet
  Initialization Logic:             ACTIVATE on_hand()

*****************************************************************************
*                                  Locations                                *
*****************************************************************************
  Name          Cap Units Stats       Rules      Cost
  ------------- --- ----- ----------- ---------- ------------
  pabrik_in     inf 1     Time Series Oldest, ,
  pabrik        inf 1     Time Series Oldest, ,
  ket           inf 1     Time Series Oldest, ,
  pabrik_p      1   1     Time Series Oldest, ,
  pabrik_out    inf 1     Time Series Oldest, ,
  gudang        inf 1     Time Series Oldest, ,
  gudang_p      1   1     Time Series Oldest, ,
  gudang_out    inf 1     Time Series Oldest, ,
  toko          1   1     Time Series Oldest, ,
  inventor_awal INF 1     Time Series Oldest, ,
*****************************************************************************
*                                  Entities                                 *
*****************************************************************************
  Name        Speed (fpm)  Stats       Cost
  ----------- ------------ ----------- ------------
  barang      150          Time Series
  barangPab   150          Time Series
  barangGd    150          Time Series
  permntaanGd 150          Time Series
  permntaanTk 150          Time Series

*****************************************************************************
*                                 Processing                                *
*****************************************************************************
                                    Process                       Routing

  Entity       Location       Operation             Blk  Output       Destination Rule
Move Logic
  ----------- ------------ ------------------   ---- ----------- ----------- ------
  barang      inventor_awal INC Inv_awal, 1
                                                 1    barang       gudang      FIRST
1
  permntaanGd ket           permnt_gd=150 (ukuran produksi)

                            IF CONTENTS(ket, permntaanGd)>0 AND inventory_akhir<=20
                                                          (batas minimum persediaan)
                             THEN
                            {pengrman_ke_gd=permnt_gd}
                             ELSE{pengrman_ke_gd=0}
                            SEND pengrman_ke_gd barang TO pabrik
                            INC jmlh_permnt_gd, pengrman_ke_gd
                            IF pengrman_ke_gd=permnt_gd THEN
                            {setup=1
                             INC jmlh_setup, 1}
                             ELSE{setup=0}
```

```
                                                    1    permntaanGd EXIT         FIRST
1
       barang      pabrik_in                        1    barang      pabrik      SEND 1
       barang      pabrik          ACCUM permnt_gd
                                   GROUP permnt_gd AS barangPab

       barangPab   pabrik          WAIT N(1.8, 0.684) HR (lead time)
                                                     1    barangPab   gudang      FIRST
1
       barangPab   gudang          UNGROUP
       permntaanTk gudang_p        distribusi_permntTk=N(26, 14.417)
                                                    (distribusi permintaan)
                                   IF distribusi_permntTk<=0 THEN
                                   {permnt_tk=0}
                                    ELSE{permnt_tk=distribusi_permntTk}
                                   INC jmlh_permnt_tk, permnt_tk
                                   IF CONTENTS(gudang_p, permntaanTk)>0 THEN
                                   {kirim_ke_tk=permnt_tk+backorder_tk
                                    INC periode, 1}
                                    ELSE{kirim_ke_tk=0}
                                   INC jmlh_inventory, on_han_inventory
                                   IF on_han_inventory>kirim_ke_tk THEN
                                   {pengrman_ke_tk=kirim_ke_tk}
                                    ELSE{pengrman_ke_tk=on_han_inventory}
                                   IF on_han_inventory<=0 THEN
                                   {backorder_tk=kirim_ke_tk}
                                    ELSE{SEND pengrman_ke_tk barang TO gudang_out}
                                   backorder_tk=kirim_ke_tk-pengrman_ke_tk
                                   IF on_han_inventory<permnt_tk THEN
                                   {data_back_toko=permnt_tk-on_han_inventory
                                    INC jmlh_backorder_tk, data_back_toko}

                                   IF jmlh_permnt_tk>0 THEN
                                   {Service_Level=100-
((jmlh_backorder_tk/jmlh_permnt_tk)*100) }
                                    ELSE{Service_Level=100}
                                   IF Service_Level<0 THEN
                                   {Service_Level=0}
                                   inventory_akhir=jmlh_permnt_gd-jmlh_permnt_tk+Inv_awal

                                                    1    permntaanTk EXIT         FIRST
1
       barang      gudang          on_han_inventory=CONTENTS(gudang, barang)

                                                    1    barang      gudang_out  SEND 1
on_han_inventory=CONTENTS(gudang, barang)-1

       barang      gudang_out      ket_group=CONTENTS(gudang_out, barang)
                                   IF ket_group>0 THEN
                                   {ACCUM pengrman_ke_tk
                                    GROUP pengrman_ke_tk AS barangGd}
                                    ELSE{DO{WAIT 0.01 MIN}
                                    UNTIL ket_group>0}

       barangGd    gudang_out                        1    barangGd    toko        FIRST
1

       barangGd    toko            UNGROUP
       barang      toko                              1    barang      EXIT        FIRST
1  INC jmlh_permt_tk_terpnhi, barang
      ********************************************************************************
      *                                 Arrivals                                     *
      ********************************************************************************
        Entity      Location  Qty Each   First Time Occurrences Frequency  Logic
        ----------- --------- ---------- ---------- ----------- ---------- ------------
        barang      pabrik_in 200        0          inf         0.5 hr
        permntaanTk gudang_p  1          1 hr       inf         1 hr
        permntaanGd ket       1          1 hr       INF         1 hr
```

Variables (global)

ID	Type	Initial value	Stats
setup	Integer	0	Time Series
jmlh_setup	Integer	0	Time Series
permnt_gd	Integer	0	Time Series
pengrman_ke_gd	Integer	0	Time Series
jmlh_permnt_gd	Integer	0	Time Series
distribusi_permntTk	Integer	0	Time Series
permnt_tk	Integer	0	Time Series
kirim_ke_tk	Integer	0	Time Series
pengrman_ke_tk	Integer	0	Time Series
jmlh_permnt_tk	Integer	0	Time Series
backorder_tk	Integer	0	Time Series
jmlh_backorder_tk	Integer	0	Time Series
on_han_inventory	Integer	0	Time Series
inventory_akhir	Integer	0	Time Series
jmlh_inventory	Integer	0	Time Series
jmlh_permt_tk_terpnhi	Integer	0	Time Series
ket_group	Integer	0	Time Series
Service_Level	Real	0	Time Series
periode	Integer	0	Time Series
Inv_awal	Integer	0	Time Series
data_back_toko	Integer	0	Time Series

Subroutines

ID	Type	Parameter	Type	Logic
on_hand	Integer			ORDER **35** barang TO inventor_awal **(on hand inventory)**

Contoh Output Model simulasi metode saat ini (Sleeping bag model Mummy)

```
------------------------------------------------------------------------------
General Report
Output from D:\My document\TA-mad3-new\bab5\Model skarang\8.SB-M(sQ)NOW.MOD [ModelTA]
Date: Jan/20/2007   Time: 05:14:44 PM
------------------------------------------------------------------------------
Scenario        : Normal Run
Replication     : 1 of 1
Simulation Time : 50 hr
------------------------------------------------------------------------------
LOCATIONS
```

Location Name	Scheduled Hours	Capacity	Total Entries	Average Minutes Per Entry	Average Contents	Maximum Contents	Current Contents	% Util
pabrik in	50	999999	20200	1409.10	9488	19000	19000	0.95
pabrik	50	999999	1200	113.20	45.28	150	150	0.0
ket	50	999999	50	0.0	0	1	0	0.0
pabrik p	50	1	0	0.0	0	0	0	0.0
pabrik out	50	999999	0	0.0	0	0	0	0.0
gudang	50	999999	42	144.15	2.01	35	0	0.0
gudang p	50	1	50	0.0	0	1	0	0.0
gudang out	50	999999	1085	0.0	0	106	0	0.0
toko	50	1	37	0.0	0	1	0	0.0
inventor awal	50	999999	35	0.0	0	1	0	0.0

LOCATION STATES BY PERCENTAGE (Multiple Capacity)

Location Name	Scheduled Hours	% Empty	% Partially Occupied	% Full	% Down
pabrik in	50	0.0	100.00	0.0	0.0
pabrik	50	69.81	30.19	0.0	0.0
ket	50	100.00	0.0	0.0	0.0
pabrik out	50	100.00	0.0	0.0	0.0
gudang	50	24.19	75.81	0.0	0.0
gudang out	50	100.00	0.0	0.0	0.0
inventor awal	50	100.00	0.0	0.0	0.0

LOCATION STATES BY PERCENTAGE (Single Capacity/Tanks)

Location Name	Scheduled Hours	% Operation	% Setup	% Idle	% Waiting	% Blocked	% Down
pabrik p	50	0.0	0.0	100.00	0.0	0.0	0.0
gudang p	50	0.0	0.0	100.00	0.0	0.0	0.0
toko	50	0.0	0.0	100.00	0.0	0.0	0.0

FAILED ARRIVALS

Entity Name	Location Name	Total Failed
barang	pabrik in	0
permntaanGd	ket	0
permntaanTk	gudang p	0

ENTITY ACTIVITY

Entity Name	Total Exits	Current Quantity In System	Average Minutes In System	Average Minutes In Move Logic	Average Minutes Wait For Res, etc.	Average Minutes In Operation	Average Minutes Blocked
barang	1085	19150	1421.19	0.0	0.0	108.61	1312.58
barangPab	7	1	112.23	0.0	0.0	112.23	0.0
barangGd	37	0	0.0	0.0	0.0	0.0	0.0

permntaanGd	50	0	0.0	0.0	0.0	0.0	0.0
permntaanTk	50	0	0.0	0.0	0.0	0.0	0.0

ENTITY STATES BY PERCENTAGE

Entity Name	% In Move Logic	% Wait For Res, etc.	% In Operation	% Blocked
barang	0.0	0.0	7.64	92.36
barangPab	0.0	0.0	100.00	0.0
barangGd	-	-	-	-
permntaanGd	-	-	-	-
permntaanTk	-	-	-	-

VARIABLES

Variable Name	Total Changes	Average Minutes Per Change	Minimum Value	Maximum Value	Current Value	Average Value
setup	50	60.00	0	1	0	0.16
jmlh setup	8	360.00	0	8	**8**	4.08
permnt gd	50	60.00	0	150	150	147
pengrman ke gd	50	60.00	0	150	0	24
jmlh permnt gd	50	60.00	0	1200	1200	612
distribusi permntTk	50	60.00	-7	52	24	22.06
permnt tk	50	60.00	0	52	24	22.4
kirim ke tk	50	60.00	0	106	59	29.32
pengrman ke tk	50	60.00	0	106	0	21.7
jmlh permnt tk	50	60.00	0	1144	1144	556.12
backorder tk	59	50.84	0	87	59	7.62
jmlh backorder tk	16	187.50	0	277	**277**	128.74
on han inventory	2170	1.32	0	150	**0**	53.21
inventory akhir	50	60.00	-19	144	91	66.18
jmlh inventory	50	60.00	0	3125	**3125**	1477.5
jmlh permt tk terpnhi	1085	2.65	0	1085	1085	548.5
ket group	1085	2.65	0	106	30	28.98
Service Level	50	60.00	0	100	**75.78**	76.30
periode	50	60.00	0	50	50	24.5
Inv awal	35	0.0	0	35	35	35
data back toko	16	187.50	0	41	24	15.72

LAMPIRAN H

Lampiran H-1

Perhitungan metode (s, S) produk *sub contract*

Kode produk	Parameter permintaan (unit/minggu)		Biaya pesan per item (Rp/kali)	Biaya pesan keseluruhan	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)	Total permintaan (unit/tahun)
	Mean	Sigma						
Sp-1	9	7,069	19.442,23		288,75	18.750,00	2,500	450
Sp-2	10	7,165	19.442,23		346,50	22.500,00	2,500	500
M	24	12,128	19.442,23	80.500,00	61,22	3.975,00	2,500	1.200
S-01	24	7,883	19.442,23		103,95	6.750,00	2,500	1.200
S-02	25	11,046	19.442,23		144,38	9.375,00	2,500	1.250
S-03	23	11,814	19.442,23		158,24	10.275,00	2,500	1.150

Step 1

	Q	$\frac{D\pi}{\sqrt{2\pi' Q\sigma_L h}}$	Apakah hasil perhitungan >1?
Sp-1	45,259	0,461	tidak, lanjut ke step 2
Sp-2	43,550	0,525	tidak, lanjut ke step 2
M	160,516	0,202	tidak, lanjut ke step 2
S-01	123,178	0,405	tidak, lanjut ke step 2
S-02	106,676	0,348	tidak, lanjut ke step 2
S-03	97,736	0,326	tidak, lanjut ke step 2

Step 2 **Step 3**

Z = 98%	**Nk**	**E(K)**	**K**	**μ_L**	**σ_L**	**s**	**S**
Sp-1	0,905	0,081	1,016	22,500	11,176	33,852	79,111
Sp-2	0,871	0,077	1,044	25,000	11,329	36,824	80,374
M	3,210	0,167	0,605	60,000	19,176	71,601	232,117
S-01	2,464	0,198	0,500	60,000	12,465	66,238	189,417
S-02	2,134	0,122	0,791	62,500	17,464	76,321	182,996
S-03	1,955	0,105	0,904	57,500	18,680	74,391	172,126

Kesimpulan:

	s (unit)	**S (unit)**
Sp-1	34	80
Sp-2	37	81
M	72	233
S-01	67	190
S-02	77	183
S-03	75	173

Lampiran H-2

Perhitungan metode (R, s, S) produk *sub contract*

No	Kode produk	Parameter permintaan (unit/minggu)		Biaya pesan per item (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)	Total permintaan (unit/tahun
		Mean	Sigma					
1	Sp-1	9	7,069	19.442,23	288,75	18.750,00	2,500	450
2	Sp-2	10	7,165	19.442,23	346,50	22.500,00	2,500	500
3	M	24	12,128	19.442,23	61,22	3.975,00	2,500	1.200
4	S-01	24	7,883	19.442,23	103,95	6.750,00	2,500	1.200
5	S-02	25	11,046	19.442,23	144,38	9.375,00	2,500	1.250
6	S-03	23	11,814	19.442,23	158,24	10.275,00	2,500	1.150

Biaya Pesan bersama (*joint order*) = Rp80.500,00 /kali
biaya simpan/unit/minggu = 0,33% = 0,003
nilai simpan seluruh produk setahun = Rp261.765.000

	R(tahun)	R(minggu)	R(hari)	Q	F'(K)	K
Sp-1	0,096	4,777	28,664	45,259	0,077	1,422
Sp-2	0,096	4,777	28,664	43,550	0,067	1,498
M	0,096	4,777	28,664	160,516	0,103	1,265
S-01	0,096	4,777	28,664	123,178	0,079	1,412
S-02	0,096	4,777	28,664	106,676	0,066	1,509
S-03	0,096	4,777	28,664	97,736	0,065	1,511

Percobaan 1 (bulat ke bawah)

	R_1 (hari)	R_1(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
Sp-1	28	4,667	64,500	18,923	112,417	136,676	113	137
Sp-2	28	4,667	71,667	19,181	123,734	143,951	124	144
M	28	4,667	172,000	32,467	269,060	373,576	270	374
S-01	28	4,667	172,000	21,104	257,790	324,969	258	325
S-02	28	4,667	179,167	29,570	282,106	330,448	283	331
S-03	28	4,667	164,833	31,627	266,277	310,346	267	311

Percobaan 2 (bulat ke atas)

	R_2 (hari)	R_2(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
Sp-1	29	4,833	66,000	19,142	114,979	138,487	115	139
Sp-2	29	4,833	73,333	19,403	126,566	145,949	127	146
M	29	4,833	176,000	32,843	275,535	378,051	276	379
S-01	29	4,833	176,000	21,348	264,134	329,313	265	330
S-02	29	4,833	183,333	29,911	288,872	335,131	289	336
S-03	29	4,833	168,667	31,992	272,579	314,732	273	315

Percobaan 3 (percobaan 2 + 1)

	R_3 (hari)	R_3(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
Sp-1	30	5,000	67,500	19,358	117,536	140,295	118	141
Sp-2	30	5,000	75,000	19,623	129,394	147,945	130	148
M	30	5,000	180,000	33,214	282,004	382,520	283	383
S-01	30	5,000	180,000	21,590	270,475	333,653	271	334
S-02	30	5,000	187,500	30,249	295,631	339,807	296	340
S-03	30	5,000	172,500	32,354	278,875	319,111	279	320

Lampiran H-3

Perhitungan metode (*s, S*)

Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	*Lead time* (minggu)		Total permintaan (unit/tahun)
	Mean	Sigma				μ	σ	
SB-M	26	14,417	104.237,88	288,75	18.750,00	1,800	0,684	1.300
SB-T	22	10,333	111.269,13	311,85	20.250,00	1,950	0,624	1.100
RC-01	20	11,445	70.253,50	265,65	17.250,00	1,667	0,633	1.000
R-100	10	7,620	76.347,25	554,40	36.000,00	1,833	0,577	500
RC-02	16	10,265	70.253,50	265,65	17.250,00	1,600	0,610	800
CP-01	22	12,798	75.722,25	219,45	14.250,00	1,500	0,603	1.100
Jacket	25	10,062	56.191,00	196,35	12.750,00	1,933	0,466	1.250
CP-02	20	7,860	81.972,25	242,55	15.750,00	1,650	0,669	1.000

Step 1

	Q	$\frac{D\pi'}{\sqrt{2\pi Q\sigma_L h}}$	Apakah hasil perhitungan >1?
SB-M	137,010	0,187	tidak, lanjut ke step 2
SB-T	125,297	0,228	tidak, lanjut ke step 2
RC-01	102,851	0,259	tidak, lanjut ke step 2
R-100	52,481	0,418	tidak, lanjut ke step 2
RC-02	91,993	0,278	tidak, lanjut ke step 2
CP-01	123,217	0,225	tidak, lanjut ke step 2
Jacket	119,620	0,297	tidak, lanjut ke step 2
CP-02	116,269	0,266	tidak, lanjut ke step 2

Step 2

	μ_L	**σ_L**	**Nk**	**E(K)**	**K**	**Kterpilih**
SB-M	46,800	26,276	2,740	0,104	0,880	0,880
SB-T	42,900	19,915	2,506	0,126	0,775	0,775
RC-01	33,333	19,463	2,057	0,106	0,873	0,873
R-100	18,333	11,824	1,050	0,089	0,968	0,968
RC-02	25,600	16,240	1,840	0,113	0,835	0,835
CP-01	33,000	20,541	2,464	0,120	0,801	0,801
Jacket	48,333	18,208	2,392	0,131	0,751	0,751
CP-02	33,000	16,758	2,325	0,139	0,718	0,718

Step 3 **Kesimpulan:**

	s	**S**	**s (unit)**	**S (unit)**
SB-M	69,932	206,943	70	207
SB-T	58,337	183,634	59	184
RC-01	50,330	153,181	51	154
R-100	29,778	82,259	30	83
RC-02	39,158	131,151	40	132
CP-01	49,457	172,674	50	173
Jacket	62,002	181,621	63	182
CP-02	45,036	161,304	46	162

Lampiran H-4

Perhitungan Metode (*R, s, S*)

No	Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)	
		Mean	Sigma				μ	σ
7	SB-M	26	14,417	104.237,88	288,75	18.750,00	1,800	0,684
8	SB-T	22	10,333	111.269,13	311,85	20.250,00	1,950	0,624
9	RC-01	20	11,445	70.253,50	265,65	17.250,00	1,667	0,633
10	R-100	10	7,620	76.347,25	554,40	36.000,00	1,833	0,577
11	RC-02	16	10,265	70.253,50	265,65	17.250,00	1,600	0,610
12	CP-01	22	12,798	75.722,25	219,45	14.250,00	1,500	0,603
13	Jacket	25	10,062	56.191,00	196,35	12.750,00	1,933	0,466
14	CP-02	20	7,860	81.972,25	242,55	15.750,00	1,650	0,669

	R(tahun)	**R(minggu)**	**R(hari)**	**Q**	**F'(K)**	**K**
SB-M	0,105	5,270	31,618	137,010	0,081	1,397
SB-T	0,114	5,695	34,172	125,297	0,088	1,355
RC-01	0,103	5,143	30,855	102,851	0,079	1,411
R-100	0,105	5,248	31,488	52,481	0,081	1,400
RC-02	0,115	5,750	34,497	91,993	0,089	1,350
CP-01	0,112	5,601	33,605	123,217	0,086	1,364
Jacket	0,096	4,785	28,709	119,620	0,074	1,449
CP-02	0,116	5,813	34,881	116,269	0,090	1,344

Percobaan 1 (bulat ke bawah)

	R_1 (hari)	**R_1(minggu)**	**μ_{L+R}**	**σ_{L+R}**	**s**	**S**	**s (unit)**	**S (unit)**
SB-M	31	5,167	181,133	42,003	306,993	376,837	307	377
SB-T	34	5,667	167,567	31,649	272,785	335,748	273	336
RC-01	30	5,000	133,333	32,152	228,684	281,535	229	282
R-100	31	5,167	70,000	20,972	125,185	151,833	126	152
RC-02	34	5,667	116,267	29,340	201,203	247,862	202	248
CP-01	33	5,500	154,000	36,369	264,115	326,832	265	327
Jacket	28	4,667	165,000	28,354	264,415	325,701	265	326
CP-02	34	5,667	146,333	25,118	236,750	296,352	237	297

Percobaan 2 (bulat ke atas)

	R_2 (hari)	**R_2(minggu)**	**μ_{L+R}**	**σ_{L+R}**	**s**	**S**	**s (unit)**	**S (unit)**
SB-M	32	5,333	185,467	42,413	314,067	381,744	315	382
SB-T	35	5,833	171,233	31,929	278,664	339,794	279	340
RC-01	31	5,167	136,667	32,490	234,160	285,345	235	286
R-100	32	5,333	71,667	21,201	128,006	153,820	129	154
RC-02	35	5,833	118,933	29,638	205,605	250,931	206	251
CP-01	34	5,667	157,667	36,743	270,124	331,008	271	332
Jacket	29	4,833	169,167	28,650	271,094	330,297	272	331
CP-02	35	5,833	149,667	25,322	242,024	299,960	243	300

Percobaan 3

	R_3 (hari)	R_3(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
SB-M	33	5,500	189,800	42,820	321,135	386,645	322	387
SB-T	33	5,500	163,900	31,367	266,902	331,699	267	332
RC-01	29	4,833	130,000	31,811	223,202	277,720	224	278
R-100	30	5,000	68,333	20,740	122,360	149,841	123	150
RC-02	33	5,500	113,600	29,039	196,797	244,789	197	245
CP-01	32	5,333	150,333	35,992	258,101	322,651	259	323
Jacket	27	4,500	160,833	28,055	257,731	321,101	258	322
CP-02	33	5,500	143,000	24,912	231,473	292,742	232	293

Percobaan 4

	R_4 (hari)	R_4(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
SB-T	32	5,333	160,233	31,082	261,016	339,360	262	340
R-100	29	4,833	66,667	20,505	119,532	147,846	120	148

Percobaan 5

	R_5 (hari)	R_5(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
R-100	28	4,667	65,000	20,268	116,700	145,847	117	146

Percobaan 6

	R_6 (hari)	R_6(minggu)	μ_{L+R}	σ_{L+R}	s	S	s (unit)	S (unit)
R-100	27	4,500	63,333	20,028	113,864	143,844	114	144

Lampiran H-5

Perhitugnan (*s, Q*)

Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	*Lead time* (minggu)		Total permintaan (unit/tahun)
	Mean	Sigma				μ	σ	
R-80	11	6,499	63.847,25	438,90	28.500,00	1,517	0,616	550
DP-L	19	8,519	46.347,25	277,20	18.000,00	1,617	0,393	950
R-60	10	6,516	51.347,25	323,40	21.000,00	1,400	0,634	500

Tahap 1	μ_L	σ_L	**Qold**	**F'(K)**	**K**	**E(K)**	**Nk**	**Qnew**	**|Qnew-Qold|**
R-80	16,683	10,486	56,572	0,079	1,410	0,032	0,341	60,721	4,149
DP-L	30,717	13,159	79,709	0,065	1,517	0,026	0,337	84,765	5,056
R-60	14,000	9,984	56,351	0,087	1,361	0,035	0,349	60,235	3,884

Tahap 2	μ_L	σ_L	**Qold**	**F'(K)**	**K**	**E(K)**	**Nk**	**Qnew**	**|Qnew-Qold|**
R-80	16,683	10,486	60,721	0,085	1,372	0,034	0,360	60,952	0,231
DP-L	30,717	13,159	84,765	0,069	1,486	0,027	0,354	85,008	0,243
R-60	14,000	9,984	60,235	0,093	1,324	0,040	0,400	60,784	0,549

Tahap 3	μ_L	σ_L	**Qold**	**F'(K)**	**K**	**E(K)**	**Nk**	**Qnew**	**|Qnew-Qold|**
R-80	16,683	10,486	60,952	0,085	1,370	0,034	0,361	60,965	0,013
DP-L	30,717	13,159	85,008	0,069	1,484	0,027	0,354	85,019	0,011
R-60	14,000	9,984	60,784	0,094	1,319	0,040	0,403	60,817	0,033

|Qnew-Qold|<0,1
STOP!!!

Kesimpulan:

	s	**s (unit)**	**Q (unit)**
R-80	31,050	32	61
DP-L	50,245	51	86
R-60	27,168	28	61

Lampiran H-6

Perhitungan Metode (*R, S*)

Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)		Total permintaan (unit/tahun)
	Mean	Sigma				μ	σ	
R-80	11	6,499	63.847,25	438,90	28.500,00	1,517	0,616	550
DP-L	19	8,519	46.347,25	277,20	18.000,00	1,617	0,393	950
R-60	10	6,516	51.347,25	323,40	21.000,00	1,400	0,634	500

	R(tahun)	R(minggu)	R(hari)
R-80	0,103	5,143	30,857
DP-L	0,084	4,195	25,171
R-60	0,113	5,635	33,811

Percobaan 1 (bulat ke bawah)

	R_1 (hari)	R_1(minggu)	F'(K)	K	μ_{L+R}	σ_{L+R}	S	S (unit)
R-80	30	5,000	0,077	1,426	71,683	17,921	97,230	98
DP-L	25	4,167	0,064	1,521	109,883	21,808	143,046	144
R-60	33	5,500	0,085	1,374	69,000	18,254	94,083	95

Percobaan 2 (bulat ke atas)

	R_2 (hari)	R_2(minggu)	F'(K)	K	μ_{L+R}	σ_{L+R}	S	S (unit)
R-80	31	5,167	0,080	1,408	73,517	18,116	99,024	100
DP-L	26	4,333	0,067	1,501	113,050	22,083	146,188	147
R-60	34	5,667	0,087	1,358	70,667	18,447	95,713	96

Percobaan 3

	R_3 (hari)	R_3(minggu)	F'(K)	K	μ_{L+R}	σ_{L+R}	S	S (unit)
R-80	32	5,333	0,082	1,391	75,350	18,309	100,816	101
DP-L	24	4,000	0,062	1,541	106,717	21,529	139,902	140
R-60	35	5,833	0,090	1,342	72,333	18,638	97,341	98

Percobaan 4

	R_4 (hari)	R_4(minggu)	F'(K)	K	μ_{L+R}	σ_{L+R}	S	S (unit)
R-80	33	5,500	0,085	1,374	77,183	18,501	102,606	103

Percobaan 5

	R_5 (hari)	R_5(minggu)	F'(K)	K	μ_{L+R}	σ_{L+R}	S	S (unit)
R-80	34	5,667	0,087	1,358	79,017	18,690	104,393	105

Lampiran H-7

Perhitungan (*simple* (*s, Q*)

Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)		Total permintaan (unit/tahun)
	Mean	Sigma				μ	σ	
DP-40	10,7	8,718	38.847,25	207,90	13.500,00	1,767	0,584	535
DP-25	15,7	11,270	28.847,25	115,50	7.500,00	1,750	0,492	785

	TBS	**Q**
DP-40	0,649	63,235
DP-25	0,649	88,558

Step 1

	$\frac{Q}{D(TBS)}$	$\frac{Q}{D(TBS)} > 1$?	$p_{u \geq k}$	**K**
DP-40	0,182	tidak, set nilai $p_{u \geq k} = Q/D(TBS)$	0,182	0,908
DP-25	0,174	tidak, set nilai $p_{u \geq k} = Q/D(TBS)$	0,174	0,940

Step 2 ; set nilai k oleh management

Step 3

	μ_L	σ_L	**s**
DP-40	18,903	4,348	22,850
DP-25	27,475	5,242	32,400

Kesimpulan:

	s (unit)	**Q (unit)**
DP-40	23	64
DP-25	33	89

Lampiran H-8

Perhitungan (*simple* (*R, S*))

Kode produk	Parameter permintaan (unit/minggu)		Biaya *set up* (Rp/kali)	Biaya penyimpanan (Rp/unit /minggu)	Biaya *back order* (Rp/unit)	Lead time (minggu)		permintaan (unit/tahun)
	Mean	Sigma				μ	σ	
DP-40	10,7	8,718	38847,25	207,90	13500,00	1,767	0,584	535
DP-25	15,7	11,270	28847,25	115,50	7500,00	1,750	0,492	785

	TBS	***R* (tahun)**	***R* (minggu)**
DP-40	0,649	0,118	5,910
DP-25	0,649	0,113	5,641

Step 1

	$\frac{R}{(TBS)}$	$\frac{R}{(TBS)} > 1?$	$p_{u \geq k}$	**K**
DP-40	0,182	tidak, set nilai $p_{u \geq k} = Q/D(TBS)$	0,182	0,908
DP-25	0,174	tidak, set nilai $p_{u \geq k} = Q/D(TBS)$	0,174	0,940

Step 2 ; set nilai k oleh management

Step 3

	μ_L	σ_L	**S**
DP-40	82,139	9,063	90,365
DP-25	116,033	10,772	126,153

Kesimpulan:

	R (hari)	**R (minggu)**	**S (unit)**
DP-40	35	5,910	91
DP-25	34	5,641	127

LAMPIRAN I
Contoh Input model simulasi Usulan metode (s, S)* system untuk produk sub contract

```
*****************************************************************************
*                                                                           *
*                        Formatted Listing of Model:                        *
* D:\My document\TA-mad3-new\bab5\Model usulan\Subcontract\model usulan(sS)SC.MOD  *
*                                                                           *
*****************************************************************************
  Time Units:                       Minutes
  Distance Units:                   Feet
  Initialization Logic:             ACTIVATE on_hand()

 ****************************************************************************
*                                  Locations                                 *
****************************************************************************

  Name          Cap Units Stats       Rules      Cost
  ------------- --- ----- ----------- ---------- ------------
  pabrik_in     inf 1     Time Series Oldest, ,
  pabrik        inf 1     Time Series Oldest, ,
  ket           inf 1     Time Series Oldest, ,
  pabrik_p      1   1     Time Series Oldest, ,
  pabrik_out    inf 1     Time Series Oldest, ,
  gudang        inf 1     Time Series Oldest, ,
  gudang_p      2   1     Time Series Oldest, ,
  gudang_out    inf 1     Time Series Oldest, ,
  toko          2   1     Time Series Oldest, ,
  inventor_awal INF 1     Time Series Oldest, ,

****************************************************************************
*                                  Entities                                *
****************************************************************************

  Name       Speed (fpm)  Stats       Cost
  ---------- ------------ ----------- ------------
  sendal1    150          Time Series
  sendal1Pab 150          Time Series
  sendal1Gd  150          Time Series
  permntnGd  150          Time Series
  permntnTk  150          Time Series
  sendal2    150          Time Series
  sendal2Pab 150          Time Series
  sendal2Gd  150          Time Series
  sendal3    150          Time Series
  sendal3Pab 150          Time Series
  sendal3Gd  150          Time Series
  matras     150          Time Series
```

```
  matrasPab  150          Time Series
  matrasGd   150          Time Series
  sepatu1    150          Time Series
  sepatu1Pab 150          Time Series
  sepatu1Gd  150          Time Series
  sepatu2    150          Time Series
  sepatu2Pab 150          Time Series
  sepatu2Gd  150          Time Series


*****************************************************************************
*                                Processing                                 *
*****************************************************************************
                                  Process                     Routing

 Entity     Location      Operation            Blk  Output     Destination Rule     Move Logic
 ---------- ------------ ------------------   ---- ---------- ----------- -------  ------------
 sendal1    inventor_awal INC Inv_awalSendal1, 1
                                              1    sendal1    gudang      FIRST 1
 sendal2    inventor_awal INC Inv_awalSendal2, 1
                                              1    sendal2    gudang      FIRST 1
 sendal3    inventor_awal INC Inv_awalSendal3, 1

                                              1    sendal3    gudang      FIRST 1
 matras     inventor_awal INC Inv_awalmatras, 1

                                              1    matras     gudang      FIRST 1
 sepatu1    inventor_awal INC Inv_awalsepatu1, 1

                                              1    sepatu1    gudang      FIRST 1
 sepatu2    inventor_awal INC Inv_awalsepatu2, 1

                                              1    sepatu2    gudang      FIRST 1
 permntnGd  ket           permnt_sendal1_gd=190-inventory_akhirSendal1
                          permnt_sendal2_gd=183-inventory_akhirSendal2
                          permnt_sendal3_gd=173-inventory_akhirSendal3
                          permnt_matras_gd=233-inventory_akhirmatras
                          permnt_sepatu1_gd=80-inventory_akhirsepatu1
                          permnt_sepatu2_gd=81-inventory_akhirsepatu2
                                     (inventory maksimum = S)
                          IF permnt_sendal1_gd<=0 THEN
                          {kelipatan_kirimsendal1=0}
                           ELSE
                          {IF permnt_sendal1_gd<=80 THEN
                          {kelipatan_kirimsendal1=80} (Kelipatan pemesanan)
                           ELSE
                          {IF permnt_sendal1_gd<=160 THEN
                          {kelipatan_kirimsendal1=160}
```

```
 ELSE
{IF permnt_sendal1_gd<=240 THEN
{kelipatan_kirimsendal1=240}
 ELSE
{IF permnt_sendal1_gd<=320 THEN
{kelipatan_kirimsendal1=320}
 ELSE
{kelipatan_kirimsendal1=400}}}}}

IF permnt_sendal2_gd<=0 THEN
{kelipatan_kirimsendal2=0}
 ELSE
{IF permnt_sendal2_gd<=80 THEN
{kelipatan_kirimsendal2=80}
 ELSE
{IF permnt_sendal2_gd<=160 THEN
{kelipatan_kirimsendal2=160}
 ELSE
{IF permnt_sendal2_gd<=240 THEN
{kelipatan_kirimsendal2=240}
 ELSE
{IF permnt_sendal2_gd<=320 THEN
{kelipatan_kirimsendal2=320}
 ELSE
{kelipatan_kirimsendal2=400}}}}}

IF permnt_sendal3_gd<=0 THEN
{kelipatan_kirimsendal3=0}
 ELSE
{IF permnt_sendal3_gd<=80 THEN
{kelipatan_kirimsendal3=80}
 ELSE
{IF permnt_sendal3_gd<=160 THEN
{kelipatan_kirimsendal3=160}
 ELSE
{IF permnt_sendal3_gd<=240 THEN
{kelipatan_kirimsendal3=240}
 ELSE
{IF permnt_sendal3_gd<=320 THEN
{kelipatan_kirimsendal3=320}
 ELSE
{kelipatan_kirimsendal3=400}}}}}
IF permnt_matras_gd<=0 THEN
{kelipatan_kirimmatras=0}
 ELSE
{IF permnt_matras_gd<=100 THEN
{kelipatan_kirimmatras=100}
 ELSE
```

```
                        {IF permnt_matras_gd<=200 THEN
                        {kelipatan_kirimmatras=200}
                         ELSE
                        {IF permnt_matras_gd<=300 THEN
                        {kelipatan_kirimmatras=300}
                         ELSE
                        {IF permnt_matras_gd<=400 THEN
                        {kelipatan_kirimmatras=400}
                         ELSE
                        {kelipatan_kirimmatras=500}}}}}

                        IF permnt_sepatu1_gd<=0 THEN
                        {kelipatan_kirimsepatu1=0}
                         ELSE
                        {IF permnt_sepatu1_gd<=50 THEN
                        {kelipatan_kirimsepatu1=50}
                         ELSE
                        {IF permnt_sepatu1_gd<=100 THEN
                        {kelipatan_kirimsepatu1=100}
                         ELSE
                        {IF permnt_sepatu1_gd<=150 THEN
                        {kelipatan_kirimsepatu1=150}
                         ELSE
                        {kelipatan_kirimsepatu1=200}}}}

                        IF permnt_sepatu2_gd<=0 THEN
                        {kelipatan_kirimsepatu2=0}
                         ELSE
                        {IF permnt_sepatu2_gd<=50 THEN
                        {kelipatan_kirimsepatu2=50}
                         ELSE
                        {IF permnt_sepatu2_gd<=100 THEN
                        {kelipatan_kirimsepatu2=100}
                         ELSE
                        {IF permnt_sepatu2_gd<=150 THEN
                        {kelipatan_kirimsepatu2=150}
                         ELSE
                        {kelipatan_kirimsepatu2=200}}}}

                        IF CONTENTS(ket, permntnGd)>0 AND ((inventory_akhirSendal1<=67)OR (inventory_akhirSendal2<=77) OR
(inventory_akhirSendal3<=75) OR (inventory_akhirmatras<=72) OR (inventory_akhirsepatu1<=34) OR (inventory_akhirsepatu2<=37)) (reorder
point = s)
                          THEN
                        {pengrmanSendal1_ke_gd=kelipatan_kirimsendal1
                         pengrmanSendal2_ke_gd=kelipatan_kirimsendal2
                         pengrmanSendal3_ke_gd=kelipatan_kirimsendal3
                         pengrmanmatras_ke_gd=kelipatan_kirimmatras
                         pengrmansepatu1_ke_gd=kelipatan_kirimsepatu1
```

```
 pengrmansepatu2_ke_gd=kelipatan_kirimsepatu2}
 ELSE
{pengrmanSendal1_ke_gd=0
 pengrmanSendal2_ke_gd=0
 pengrmanSendal3_ke_gd=0
 pengrmanmatras_ke_gd=0
 pengrmansepatu1_ke_gd=0
 pengrmansepatu2_ke_gd=0}

SEND pengrmanSendal1_ke_gd sendal1 TO pabrik
SEND pengrmanSendal2_ke_gd sendal2 TO pabrik
SEND pengrmanSendal3_ke_gd sendal3 TO pabrik
SEND pengrmanmatras_ke_gd matras TO pabrik
SEND pengrmansepatu1_ke_gd sepatu1 TO pabrik
SEND pengrmansepatu2_ke_gd sepatu2 TO pabrik
INC jmlh_permntSendal1_gd, pengrmanSendal1_ke_gd
INC jmlh_permntSendal2_gd, pengrmanSendal2_ke_gd
INC jmlh_permntSendal3_gd, pengrmanSendal3_ke_gd
INC jmlh_permntmatras_gd, pengrmanmatras_ke_gd
INC jmlh_permntsepatu1_gd, pengrmansepatu1_ke_gd
INC jmlh_permntsepatu2_gd, pengrmansepatu2_ke_gd

IF (pengrmanSendal1_ke_gd=kelipatan_kirimsendal1) AND (kelipatan_kirimsendal1>0) THEN
{pesan_sendal1=1
 INC jmlh_pesan_sendal1, 1}
 ELSE
{pesan_sendal1=0}

IF (pengrmanSendal2_ke_gd=kelipatan_kirimsendal2) AND (kelipatan_kirimsendal2>0) THEN
{pesan_sendal2=1
 INC jmlh_pesan_sendal2, 1}
 ELSE
{pesan_sendal2=0}

IF (pengrmanSendal3_ke_gd=kelipatan_kirimsendal3) AND (kelipatan_kirimsendal3>0) THEN
{pesan_sendal3=1
 INC jmlh_pesan_sendal3, 1}
 ELSE
{pesan_sendal3=0}

IF (pengrmanmatras_ke_gd=kelipatan_kirimmatras) AND (kelipatan_kirimmatras>0) THEN
{pesan_matras=1
 INC jmlh_pesan_matras, 1}
 ELSE
{pesan_matras=0}

IF (pengrmansepatu1_ke_gd=kelipatan_kirimsepatu1) AND (kelipatan_kirimsepatu1>0) THEN
{pesan_sepatu1=1
```

```
                         INC jmlh_pesan_sepatu1, 1}
                         ELSE
                        {pesan_sepatu1=0}

                        IF (pengrmansepatu2_ke_gd=kelipatan_kirimsepatu2) AND (kelipatan_kirimsepatu2>0) THEN
                         {pesan_sepatu2=1
                         INC jmlh_pesan_sepatu2, 1}
                         ELSE
                        {pesan_sepatu2=0}


                                              1    permntnGd  EXIT        FIRST 1
sendal1    pabrik_in                          1    sendal1    pabrik      SEND 1
sendal2    pabrik_in                          1    sendal2    pabrik      SEND 1
sendal3    pabrik_in                          1    sendal3    pabrik      SEND 1
matras     pabrik_in                          1    matras     pabrik      SEND 1
sepatu1    pabrik_in                          1    sepatu1    pabrik      SEND 1
sepatu2    pabrik_in                          1    sepatu2    pabrik      SEND 1
sendal1    pabrik        ACCUM pengrmanSendal1_ke_gd
                         GROUP pengrmanSendal1_ke_gd AS sendal1Pab


sendal2    pabrik        ACCUM pengrmanSendal2_ke_gd
                         GROUP pengrmanSendal2_ke_gd AS sendal2Pab


sendal3    pabrik        ACCUM pengrmanSendal3_ke_gd
                         GROUP pengrmanSendal3_ke_gd AS sendal3Pab


matras     pabrik        ACCUM pengrmanmatras_ke_gd
                         GROUP pengrmanmatras_ke_gd AS matrasPab


sepatu1    pabrik        ACCUM pengrmansepatu1_ke_gd
                         GROUP pengrmansepatu1_ke_gd AS sepatu1Pab


sepatu2    pabrik        ACCUM pengrmansepatu2_ke_gd
                         GROUP pengrmansepatu2_ke_gd AS sepatu2Pab


sendal1Pab pabrik        WAIT 2.5 HR        1    sendal1Pab gudang      FIRST 1
sendal2Pab pabrik        WAIT 2.5 HR

                                              1    sendal2Pab gudang      FIRST 1
sendal3Pab pabrik        WAIT 2.5 HR
                                              1    sendal3Pab gudang      FIRST 1
```

```
matrasPab  pabrik        WAIT 2.5 HR

                                      1    matrasPab  gudang      FIRST 1
sepatu1Pab pabrik        WAIT 2.5 HR

                                      1    sepatu1Pab gudang      FIRST 1
sepatu2Pab pabrik        WAIT 2.5 HR

                                      1    sepatu2Pab gudang      FIRST 1
sendal1Pab gudang        UNGROUP
sendal2Pab gudang        UNGROUP
sendal3Pab gudang        UNGROUP
matrasPab  gudang        UNGROUP
sepatu1Pab gudang        UNGROUP
sepatu2Pab gudang        UNGROUP
permntnTk  gudang_p      distribusi_permntSendal1Tk=N(24, 7.883) (Distribusi permintaan)
                         IF distribusi_permntSendal1Tk<=0 THEN
                         {permntSendal1_tk=0}
                          ELSE{permntSendal1_tk=distribusi_permntSendal1Tk}
                          INC jmlh_permntSendal1_tk, permntSendal1_tk
                          IF CONTENTS(gudang_p, permntnTk)>0 THEN
                         {kirimSendal1_ke_tk=permntSendal1_tk+backorderSendal1_tk
                          INC periode, 1}
                          ELSE{kirimSendal1_ke_tk=0}
                         INC jmlh_inventorySendal1, on_han_inventorySendal1
                         IF on_han_inventorySendal1>kirimSendal1_ke_tk THEN
                         {pengrmanSendal1_ke_tk=kirimSendal1_ke_tk}
                          ELSE{pengrmanSendal1_ke_tk=on_han_inventorySendal1}

                         IF on_han_inventorySendal1<=0 THEN
                         {backorderSendal1_tk=kirimSendal1_ke_tk}
                          ELSE{SEND pengrmanSendal1_ke_tk sendal1 TO gudang_out}

                         backorderSendal1_tk=kirimSendal1_ke_tk-pengrmanSendal1_ke_tk

                         IF on_han_inventorySendal1<permntSendal1_tk THEN
                         {data_back_tokoSendal1=permntSendal1_tk-on_han_inventorySendal1
                          INC jmlh_backorderSendal1_tk, data_back_tokoSendal1}

                         IF jmlh_permntSendal1_tk>0 THEN
                         {Service_LevelSendal1=100-((jmlh_backorderSendal1_tk/jmlh_permntSendal1_tk)*100)}
                          ELSE
                         {Service_LevelSendal1=100}

                         IF Service_LevelSendal1<0 THEN
                         {Service_LevelSendal1=0}

                         inventory_akhirSendal1=jmlh_permntSendal1_gd-jmlh_permntSendal1_tk+Inv_awalSendal1
```

```
distribusi_permntSendal2Tk=N(25, 11.046)
IF distribusi_permntSendal2Tk<=0 THEN
{permntSendal2_tk=0}
 ELSE{permntSendal2_tk=distribusi_permntSendal2Tk}

INC jmlh_permntSendal2_tk, permntSendal2_tk


IF CONTENTS(gudang_p, permntnTk)>0 THEN
{kirimSendal2_ke_tk=permntSendal2_tk+backorderSendal2_tk
}
 ELSE
{kirimSendal2_ke_tk=0}

INC jmlh_inventorySendal2, on_han_inventorySendal2

IF on_han_inventorySendal2>kirimSendal2_ke_tk THEN
{pengrmanSendal2_ke_tk=kirimSendal2_ke_tk}
 ELSE
{pengrmanSendal2_ke_tk=on_han_inventorySendal2}

IF on_han_inventorySendal2<=0 THEN
{
 backorderSendal2_tk=kirimSendal2_ke_tk
}
 ELSE
{
 SEND pengrmanSendal2_ke_tk sendal2 TO gudang_out
}
backorderSendal2_tk=kirimSendal2_ke_tk-pengrmanSendal2_ke_tk


IF on_han_inventorySendal2<permntSendal2_tk THEN
{
 data_back_tokoSendal2=permntSendal2_tk-on_han_inventorySendal2
 INC jmlh_backorderSendal2_tk, data_back_tokoSendal2
}


IF jmlh_permntSendal2_tk>0 THEN
{
 Service_LevelSendal2=100-((jmlh_backorderSendal2_tk/jmlh_permntSendal2_tk)*100) }
 ELSE
{
 Service_LevelSendal2=100
}
```

```
IF Service_LevelSendal2<0 THEN
{
 Service_LevelSendal2=0
}

inventory_akhirSendal2=jmlh_permntSendal2_gd-jmlh_permntSendal2_tk+Inv_awalSendal2

distribusi_permntSendal3Tk=N(23, 11.814)
IF distribusi_permntSendal3Tk<=0 THEN
{
 permntSendal3_tk=0
}
 ELSE
{
 permntSendal3_tk=distribusi_permntSendal3Tk
}

INC jmlh_permntSendal3_tk, permntSendal3_tk


IF CONTENTS(gudang_p, permntnTk)>0 THEN
{
 kirimSendal3_ke_tk=permntSendal3_tk+backorderSendal3_tk
}
 ELSE
{
 kirimSendal3_ke_tk=0
}

INC jmlh_inventorySendal3, on_han_inventorySendal3


IF on_han_inventorySendal3>kirimSendal3_ke_tk THEN
{
 pengrmanSendal3_ke_tk=kirimSendal3_ke_tk
}
 ELSE
{
 pengrmanSendal3_ke_tk=on_han_inventorySendal3
}

IF on_han_inventorySendal3<=0 THEN
{
 backorderSendal3_tk=kirimSendal3_ke_tk
}
 ELSE
{
 SEND pengrmanSendal3_ke_tk sendal3 TO gudang_out
```

```
}
backorderSendal3_tk=kirimSendal3_ke_tk-pengrmanSendal3_ke_tk


IF on_han_inventorySendal3<permntSendal3_tk THEN
{
 data_back_tokoSendal3=permntSendal3_tk-on_han_inventorySendal3
 INC jmlh_backorderSendal3_tk, data_back_tokoSendal3
}

IF jmlh_permntSendal3_tk>0 THEN
{
 Service_LevelSendal3=100-((jmlh_backorderSendal3_tk/jmlh_permntSendal3_tk)*100)}
 ELSE
{
 Service_LevelSendal3=100
}

IF Service_LevelSendal3<0 THEN
{
 Service_LevelSendal3=0
}

inventory_akhirSendal3=jmlh_permntSendal3_gd-jmlh_permntSendal3_tk+Inv_awalSendal3

distribusi_permntmatrasTk=N(24, 12.128)
IF distribusi_permntmatrasTk<=0 THEN
{
 permntmatras_tk=0
}
 ELSE
{
 permntmatras_tk=distribusi_permntmatrasTk
}

INC jmlh_permntmatras_tk, permntmatras_tk


IF CONTENTS(gudang_p, permntnTk)>0 THEN
{
 kirimmatras_ke_tk=permntmatras_tk+backordermatras_tk
}
 ELSE
{
 kirimmatras_ke_tk=0
}

INC jmlh_inventorymatras, on_han_inventorymatras
```

```
IF on_han_inventorymatras>kirimmatras_ke_tk THEN
{
 pengrmanmatras_ke_tk=kirimmatras_ke_tk
}
 ELSE
{
 pengrmanmatras_ke_tk=on_han_inventorymatras
}

IF on_han_inventorymatras<=0 THEN
{
 backordermatras_tk=kirimmatras_ke_tk
}
 ELSE
{
 SEND pengrmanmatras_ke_tk matras TO gudang_out
}
backordermatras_tk=kirimmatras_ke_tk-pengrmanmatras_ke_tk


IF on_han_inventorymatras<permntmatras_tk THEN
{
 data_back_tokomatras=permntmatras_tk-on_han_inventorymatras
 INC jmlh_backordermatras_tk, data_back_tokomatras
}

IF jmlh_permntmatras_tk>0 THEN
{
 Service_Levelmatras=100-((jmlh_backordermatras_tk/jmlh_permntmatras_tk)*100) }
 ELSE
{
 Service_Levelmatras=100
}

IF Service_Levelmatras<0 THEN
{
 Service_Levelmatras=0
}

inventory_akhirmatras=jmlh_permntmatras_gd-jmlh_permntmatras_tk+Inv_awalmatras



distribusi_permntsepatu1Tk=N(9, 7.069)
IF distribusi_permntsepatu1Tk<=0 THEN
{
```

```
 permntsepatu1_tk=0
}
 ELSE
{
 permntsepatu1_tk=distribusi_permntsepatu1Tk
}

INC jmlh_permntsepatu1_tk, permntsepatu1_tk


IF CONTENTS(gudang_p, permntnTk)>0 THEN
{
 kirimsepatu1_ke_tk=permntsepatu1_tk+backordersepatu1_tk
}
 ELSE
{
 kirimsepatu1_ke_tk=0
}

INC jmlh_inventorysepatu1, on_han_inventorysepatu1


IF on_han_inventorysepatu1>kirimsepatu1_ke_tk THEN
{
 pengrmansepatu1_ke_tk=kirimsepatu1_ke_tk
}
 ELSE
{
 pengrmansepatu1_ke_tk=on_han_inventorysepatu1
}

IF on_han_inventorysepatu1<=0 THEN
{
 backordersepatu1_tk=kirimsepatu1_ke_tk
}
 ELSE
{
 SEND pengrmansepatu1_ke_tk sepatu1 TO gudang_out
}
backordersepatu1_tk=kirimsepatu1_ke_tk-pengrmansepatu1_ke_tk


IF on_han_inventorysepatu1<permntsepatu1_tk THEN
{
 data_back_tokosepatu1=permntsepatu1_tk-on_han_inventorysepatu1
 INC jmlh_backordersepatu1_tk, data_back_tokosepatu1
}
```

```
IF jmlh_permntsepatu1_tk>0 THEN
{
 Service_Levelsepatu1=100-((jmlh_backordersepatu1_tk/jmlh_permntsepatu1_tk)*100)}
 ELSE
{
 Service_Levelsepatu1=100
}

IF Service_Levelsepatu1<0 THEN
{
 Service_Levelsepatu1=0
}

inventory_akhirsepatu1=jmlh_permntsepatu1_gd-jmlh_permntsepatu1_tk+Inv_awalsepatu1

distribusi_permntsepatu2Tk=N(10, 7.165)
IF distribusi_permntsepatu2Tk<=0 THEN
{
 permntsepatu2_tk=0
}
 ELSE
{
 permntsepatu2_tk=distribusi_permntsepatu2Tk
}

INC jmlh_permntsepatu2_tk, permntsepatu2_tk


IF CONTENTS(gudang_p, permntnTk)>0 THEN
{
 kirimsepatu2_ke_tk=permntsepatu2_tk+backordersepatu2_tk
}
 ELSE
{
 kirimsepatu2_ke_tk=0
}

INC jmlh_inventorysepatu2, on_han_inventorysepatu2


IF on_han_inventorysepatu2>kirimsepatu2_ke_tk THEN
{
 pengrmansepatu2_ke_tk=kirimsepatu2_ke_tk
}
 ELSE
{
 pengrmansepatu2_ke_tk=on_han_inventorysepatu2
}
```

```
                        IF on_han_inventorysepatu2<=0 THEN
                        {
                         backordersepatu2_tk=kirimsepatu2_ke_tk
                        }
                         ELSE
                        {
                         SEND pengrmansepatu2_ke_tk sepatu2 TO gudang_out
                        }
                        backordersepatu2_tk=kirimsepatu2_ke_tk-pengrmansepatu2_ke_tk


                        IF on_han_inventorysepatu2<permntsepatu2_tk THEN
                        {
                         data_back_tokosepatu2=permntsepatu2_tk-on_han_inventorysepatu2
                         INC jmlh_backordersepatu2_tk, data_back_tokosepatu2
                        }

                        IF jmlh_permntsepatu2_tk>0 THEN
                        {
                         Service_Levelsepatu2=100-((jmlh_backordersepatu2_tk/jmlh_permntsepatu2_tk)*100}}
                         ELSE
                        {
                         Service_Levelsepatu2=100
                        }

                        IF Service_Levelsepatu2<0 THEN
                        {
                         Service_Levelsepatu2=0
                        }
                        inventory_akhirsepatu2=jmlh_permntsepatu2_gd-jmlh_permntsepatu2_tk+Inv_awalsepatu2
                                              1    permntnTk  EXIT        FIRST 1
 sendal1    gudang        on_han_inventorySendal1=CONTENTS(gudang, sendal1)



                                              1    sendal1    gudang_out  SEND 1   on_han_inventorySendal1=CONTENTS(gudang, sendal1)-
1

 sendal2    gudang        on_han_inventorySendal2=CONTENTS(gudang, sendal2)



                                              1    sendal2    gudang_out  SEND 1   on_han_inventorySendal2=CONTENTS(gudang, sendal2)-
1
```

```
 sendal3    gudang        on_han_inventorySendal3=CONTENTS(gudang, sendal3)


                                        1    sendal3    gudang_out  SEND 1   on_han_inventorySendal3=CONTENTS(gudang, sendal3)-
1
 matras     gudang        on_han_inventorymatras=CONTENTS(gudang, matras)


                                        1    matras     gudang_out  SEND 1   on_han_inventorymatras=CONTENTS(gudang, matras)-1
 sepatu1    gudang        on_han_inventorysepatu1=CONTENTS(gudang, sepatu1)


                                        1    sepatu1    gudang_out  SEND 1   on_han_inventorysepatu1=CONTENTS(gudang, sepatu1)-
1
 sepatu2    gudang        on_han_inventorysepatu2=CONTENTS(gudang, sepatu2)


                                        1    sepatu2    gudang_out  SEND 1   on_han_inventorysepatu2=CONTENTS(gudang, sepatu2)-
1
 sendal1    gudang_out    ket_groupSendal1=CONTENTS(gudang_out, sendal1)

                          IF ket_groupSendal1>0 THEN
                          {
                           ACCUM pengrmanSendal1_ke_tk
                           GROUP pengrmanSendal1_ke_tk AS sendal1Gd
                          }
                           ELSE
                          {
                           DO
                          {
                           WAIT 0.01 MIN
                          }
                           UNTIL ket_groupSendal1>0
                          }
```

```
sendal2    gudang_out    ket_groupSendal2=CONTENTS(gudang_out, sendal2)

                         IF ket_groupSendal2>0 THEN
                         {
                          ACCUM pengrmanSendal2_ke_tk
                          GROUP pengrmanSendal2_ke_tk AS sendal2Gd
                         }
                          ELSE
                         {
                          DO
                         {
                          WAIT 0.01 MIN
                         }
                          UNTIL ket_groupSendal2>0
                         }

sendal3    gudang_out    ket_groupSendal3=CONTENTS(gudang_out, sendal3)

                         IF ket_groupSendal3>0 THEN
                         {
                          ACCUM pengrmanSendal3_ke_tk
                          GROUP pengrmanSendal3_ke_tk AS sendal3Gd
                         }
                          ELSE
                         {
                          DO
                         {
                          WAIT 0.01 MIN
                         }
                          UNTIL ket_groupSendal3>0
                         }

matras     gudang_out    ket_groupmatras=CONTENTS(gudang_out, matras)

                         IF ket_groupmatras>0 THEN
                         {
                          ACCUM pengrmanmatras_ke_tk
                          GROUP pengrmanmatras_ke_tk AS matrasGd
                         }
                          ELSE
                         {
                          DO
                         {
                          WAIT 0.01 MIN
                         }
```

```
                         UNTIL ket_groupmatras>0
                        }

sepatu1    gudang_out    ket_groupsepatu1=CONTENTS(gudang_out, sepatu1)

                        IF ket_groupsepatu1>0 THEN
                        {
                         ACCUM pengrmansepatu1_ke_tk
                         GROUP pengrmansepatu1_ke_tk AS sepatu1Gd
                        }
                         ELSE
                        {
                         DO
                        {
                         WAIT 0.01 MIN
                        }
                         UNTIL ket_groupsepatu1>0
                        }

sepatu2    gudang_out    ket_groupsepatu2=CONTENTS(gudang_out, sepatu2)

                        IF ket_groupsepatu2>0 THEN
                        {
                         ACCUM pengrmansepatu2_ke_tk
                         GROUP pengrmansepatu2_ke_tk AS sepatu2Gd
                        }
                         ELSE
                        {
                         DO
                        {
                         WAIT 0.01 MIN
                        }
                         UNTIL ket_groupsepatu2>0
                        }

sendal1Gd  gudang_out                       1    sendal1Gd  toko        FIRST 1

sendal2Gd  gudang_out                       1    sendal2Gd  toko        FIRST 1

sendal3Gd  gudang_out                       1    sendal3Gd  toko        FIRST 1

matrasGd   gudang_out                       1    matrasGd   toko        FIRST 1

sepatu1Gd  gudang_out                       1    sepatu1Gd  toko        FIRST 1

sepatu2Gd  gudang_out                       1    sepatu2Gd  toko        FIRST 1

sendal1Gd  toko          UNGROUP
```

```
 sendal2Gd  toko          UNGROUP
 sendal3Gd  toko          UNGROUP
 matrasGd   toko          UNGROUP
 sepatu1Gd  toko          UNGROUP
 sepatu2Gd  toko          UNGROUP
 sendal1    toko                          1    sendal1    EXIT        FIRST 1  INC jmlh_permt_tk_terpnhiSendal1, sendal1
 sendal2    toko                          1    sendal2    EXIT        FIRST 1  INC jmlh_permt_tk_terpnhiSendal2, 1
 sendal3    toko                          1    sendal3    EXIT        FIRST 1  INC jmlh_permt_tk_terpnhiSendal3, 1
 matras     toko                          1    matras     EXIT        FIRST 1  INC jmlh_permt_tk_terpnhimatras, 1
 sepatu1    toko                          1    sepatu1    EXIT        FIRST 1  INC jmlh_permt_tk_terpnhisepatu1, 1
 sepatu2    toko                          1    sepatu2    EXIT        FIRST 1  INC jmlh_permt_tk_terpnhisepatu2, 1


*****************************************************************************
*                                 Arrivals                                  *
*****************************************************************************

  Entity    Location  Qty Each   First Time Occurrences Frequency  Logic
  --------- --------- ---------- ---------- ----------- ---------- ------------
  sendal1   pabrik_in 200        0          inf         0.5 hr
  permntnTk gudang_p  1          1 hr       inf         1 hr
  permntnGd ket       1          1 hr       INF         1 hr
  sendal2   pabrik_in 200        0          inf         0.5 hr
  sendal3   pabrik_in 200        0          inf         0.5 hr
  matras    pabrik_in 200        0          INF         0.5 hr
  sepatu1   pabrik_in 200        0          inf         0.5 hr
  sepatu2   pabrik_in 200        0          inf         0.5 hr


*****************************************************************************
*                                Attributes                                 *
*****************************************************************************

  ID         Type         Classification
  ---------- ------------ --------------
  Att1       Integer      Entity


*****************************************************************************
*                            Variables (global)                             *
*****************************************************************************

  ID                          Type         Initial value Stats
  --------------------------- ------------ ------------- -----------
  pesan_sendal1               Integer      0             Time Series
  pesan_sendal2               Integer      0             Time Series
  pesan_sendal3               Integer      0             Time Series
  pesan_matras                Integer      0             Time Series
```

pesan_sepatu1	Integer	0	Time Series
pesan_sepatu2	Integer	0	Time Series
jmlh_pesan_sendal1	Integer	0	Time Series
jmlh_pesan_sendal2	Integer	0	Time Series
jmlh_pesan_sendal3	Integer	0	Time Series
jmlh_pesan_matras	Integer	0	Time Series
jmlh_pesan_sepatu1	Integer	0	Time Series
jmlh_pesan_sepatu2	Integer	0	Time Series
permnt_sendal1_gd	Integer	0	Time Series
permnt_sendal3_gd	Integer	0	Time Series
permnt_matras_gd	Integer	0	Time Series
permnt_sepatu1_gd	Integer	0	Time Series
permnt_sepatu2_gd	Integer	0	Time Series
pengrmanSendal1_ke_gd	Integer	0	Time Series
pengrmanSendal3_ke_gd	Integer	0	Time Series
pengrmanmatras_ke_gd	Integer	0	Time Series
pengrmansepatu1_ke_gd	Integer	0	Time Series
pengrmansepatu2_ke_gd	Integer	0	Time Series
jmlh_permntSendal1_gd	Integer	0	Time Series
jmlh_permntmatras_gd	Integer	0	Time Series
jmlh_permntSepatu1_gd	Integer	0	Time Series
jmlh_permntSepatu2_gd	Integer	0	Time Series
jmlh_permntSendal3_gd	Integer	0	Time Series
distribusi_permntSendal1Tk	Integer	0	Time Series
distribusi_permntSendal3Tk	Integer	0	Time Series
distribusi_permntmatrasTk	Integer	0	Time Series
distribusi_permntsepatu1Tk	Integer	0	Time Series
distribusi_permntsepatu2Tk	Integer	0	Time Series
permntSendal1_tk	Integer	0	Time Series
permntSendal2_tk	Integer	0	Time Series
permntSendal3_tk	Integer	0	Time Series
permntmatras_tk	Integer	0	Time Series
permntsepatu1_tk	Integer	0	Time Series
permntsepatu2_tk	Integer	0	Time Series
kirimSendal1_ke_tk	Integer	0	Time Series
kirimSendal2_ke_tk	Integer	0	Time Series
kirimSendal3_ke_tk	Integer	0	Time Series
kirimmatras_ke_tk	Integer	0	Time Series
kirimsepatu1_ke_tk	Integer	0	Time Series
kirimsepatu2_ke_tk	Integer	0	Time Series
pengrmanSendal1_ke_tk	Integer	0	Time Series
pengrmanSendal2_ke_tk	Integer	0	Time Series
pengrmanSendal3_ke_tk	Integer	0	Time Series
pengrmanmatras_ke_tk	Integer	0	Time Series
pengrmansepatu1_ke_tk	Integer	0	Time Series
pengrmansepatu2_ke_tk	Integer	0	Time Series
jmlh_permntSendal1_tk	Integer	0	Time Series
jmlh_permntSendal2_tk	Integer	0	Time Series

jmlh_permntSendal3_tk	Integer	0	Time Series
jmlh_permntmatras_tk	Integer	0	Time Series
jmlh_permntsepatu1_tk	Integer	0	Time Series
jmlh_permntsepatu2_tk	Integer	0	Time Series
backorderSendal1_tk	Integer	0	Time Series
backorderSendal2_tk	Integer	0	Time Series
backorderSendal3_tk	Integer	0	Time Series
backordermatras_tk	Integer	0	Time Series
backordersepatu1_tk	Integer	0	Time Series
backordersepatu2_tk	Integer	0	Time Series
jmlh_backorderSendal1_tk	Integer	0	Time Series
jmlh_backorderSendal2_tk	Integer	0	Time Series
jmlh_backorderSendal3_tk	Integer	0	Time Series
jmlh_backordermatras_tk	Integer	0	Time Series
jmlh_backordersepatu1_tk	Integer	0	Time Series
jmlh_backordersepatu2_tk	Integer	0	Time Series
on_han_inventorySendal1	Integer	0	Time Series
on_han_inventorySendal2	Integer	0	Time Series
on_han_inventorySendal3	Integer	0	Time Series
on_han_inventorymatras	Integer	0	Time Series
on_han_inventorysepatu1	Integer	0	Time Series
on_han_inventorysepatu2	Integer	0	Time Series
inventory_akhirSendal1	Integer	0	Time Series
inventory_akhirSendal2	Integer	0	Time Series
inventory_akhirSendal3	Integer	0	Time Series
inventory_akhirmatras	Integer	0	Time Series
inventory_akhirsepatu1	Integer	0	Time Series
inventory_akhirsepatu2	Integer	0	Time Series
jmlh_inventorySendal1	Integer	0	Time Series
jmlh_inventorySendal2	Integer	0	Time Series
jmlh_inventorySendal3	Integer	0	Time Series
jmlh_inventorymatras	Integer	0	Time Series
jmlh_inventorysepatu1	Integer	0	Time Series
jmlh_inventorysepatu2	Integer	0	Time Series
jmlh_permt_tk_terpnhiSendal1	Integer	0	Time Series
jmlh_permt_tk_terpnhiSendal2	Integer	0	Time Series
jmlh_permt_tk_terpnhiSendal3	Integer	0	Time Series
jmlh_permt_tk_terpnhimatras	Integer	0	Time Series
jmlh_permt_tk_terpnhisepatu1	Integer	0	Time Series
jmlh_permt_tk_terpnhisepatu2	Integer	0	Time Series
ket_groupSendal1	Integer	0	Time Series
ket_groupSendal2	Integer	0	Time Series
ket_groupSendal3	Integer	0	Time Series
ket_groupmatras	Integer	0	Time Series
ket_groupsepatu1	Integer	0	Time Series
ket_groupsepatu2	Integer	0	Time Series
Service_LevelSendal1	Real	0	Time Series
Service_LevelSendal2	Real	0	Time Series

Service_LevelSendal3	Real	0	Time Series
Service_Levelmatras	Real	0	Time Series
Service_Levelsepatu1	Real	0	Time Series
Service_Levelsepatu2	Real	0	Time Series
periode	Integer	0	Time Series
Inv_awalSendal1	Integer	0	Time Series
Inv_awalSendal2	Integer	0	Time Series
Inv_awalSendal3	Integer	0	Time Series
Inv_awalmatras	Integer	0	Time Series
Inv_awalsepatu1	Integer	0	Time Series
Inv_awalsepatu2	Integer	0	Time Series
data_back_tokoSendal1	Integer	0	Time Series
data_back_tokoSendal2	Integer	0	Time Series
data_back_tokoSendal3	Integer	0	Time Series
data_back_tokomatras	Integer	0	Time Series
data_back_tokosepatu1	Integer	0	Time Series
data_back_tokosepatu2	Integer	0	Time Series
permnt_sendal2_gd	Integer	0	Time Series
pengrmanSendal2_ke_gd	Integer	0	Time Series
jmlh_permntSendal2_gd	Integer	0	Time Series
distribusi_permntSendal2Tk	Integer	0	Time Series
kelipatan_kirimsendal1	Integer	0	Time Series
kelipatan_kirimsendal2	Integer	0	Time Series
kelipatan_kirimsendal3	Integer	0	Time Series
kelipatan_kirimmatras	Integer	0	Time Series
kelipatan_kirimsepatu1	Integer	0	Time Series
kelipatan_kirimsepatu2	Integer	0	Time Series

****
Subroutines
****

ID	Type	Parameter	Type	Logic
on_hand	Integer			ORDER **15** sendal1 TO inventor_awal ORDER **20** sendal2 TO inventor_awal ORDER **30** sendal3 TO inventor_awal ORDER **30** matras TO inventor_awal ORDER **26** sepatu1 TO inventor_awal ORDER **24** sepatu2 TO inventor_awal **(On hand)**

LAMPIRAN J

Lampiran J-1

Output* metode (s, S) produk *sub contract

No	Kode Produk	Parameter		Output Simulasi							
		s *(unit)*	*S* *(unit)*	Setup (kali)	total persediaan (unit)	*Back-order* (unit)	Biaya. pesan (Rp)	Biaya Simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	Sp-1	34	80	8	3.452	0	155.537,84	996.765,00	0,00	1.152.302,84	100
2	Sp-2	37	81	9	3.066	29	174.980,07	1.062.369,00	652.500,00	1.889.849,07	93,62
3	M	72	233	9	9.544	0	174.980,07	584.235,96	0,00	759.216,03	100
4	S-01	67	190	10	6.700	40	194.422,30	696.465,00	270.000,00	1.160.887,30	96,63
5	S-02	77	183	10	6.006	86	194.422,30	867.116,25	806.250,00	1.867.788,55	93,29
6	S-03	75	173	10	5.415	56	194.422,30	856.842,53	575.400,00	1.626.664,83	95,52
Sub total biaya persediaan produk *sub contract*										8.456.708,62	
Biaya pesan bersama sendal: 10 *x* Rp 80.500,00										805.000,00	
Total biaya (Rp)										**9.261.708,62**	

Lampiran J-2

Output Metode *(R, s, S)* system* untuk produk *sub contract*

Percobaan 1

No	Kode produk	Parameter R = 4,667 minggu		Output simulasi							
		s (unit)	*S (unit)*	Pesan (kali)	Inventory (unit)	*Back-order* (unit)	Biaya pesan (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	Sp-1	113	137	7	5.602	0	136.095,61	1.617.577,50	0,00	1.617.577,50	100,00
2	Sp-2	124	144	7	6.166	29	136.095,61	2.136.519,00	652.500,00	2.789.019,00	93,62
3	M	270	374	5	13.744	0	97.211,15	841.338,96	0,00	841.338,96	100,00
4	S-01	258	325	7	12.300	40	136.095,61	1.278.585,00	270.000,00	1.548.585,00	96,63
5	S-02	283	331	10	12.166	86	194.422,30	1.756.466,25	806.250,00	2.562.716,25	93,29
6	S-03	267	311	9	11.698	19	174.980,07	1.851.033,03	195.225,00	2.046.258,03	98,48
Sub total biaya										11.405.494,74	
Biaya pemesanan gabungan = 10 *x* Rp 80.500,00										805.000,00	
Total Biaya Persediaan Produk *Subcontract* (Rp)										12.210.494,74	

Percobaan 2

No	Kode produk	Parameter R = 4,833 minggu		Output simulasi							
		s (unit)	*S (unit)*	Pesan (kali)	Inventory (unit)	*Back-order* (unit)	Biaya pesan (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	Sp-1	115	139	8	5.252	0	155.537,84	1.516.515,00	0,00	1.516.515,00	100,00
2	Sp-2	127	146	8	5.716	29	155.537,84	1.980.594,00	652.500,00	2.633.094,00	93,62
3	M	276	379	6	14.144	0	116.653,38	865.824,96	0,00	865.824,96	100,00
4	S-01	265	330	8	11.580	40	155.537,84	1.203.741,00	270.000,00	1.473.741,00	96,63
5	S-02	289	336	10	11.926	86	194.422,30	1.721.816,25	806.250,00	2.528.066,25	93,29
6	S-03	273	315	8	10.498	19	155.537,84	1.661.151,03	195.225,00	1.856.376,03	98,48
Sub total biaya										10.873.617,24	
Biaya pemesanan gabungan = 10 *x* Rp 80.500,00										805.000,00	
Total Biaya Persediaan Produk *Subcontract* (Rp)										**11.678.617,24**	

Percobaan 3

No	Kode produk	Parameter R = 5 minggu		Output simulasi							
		s (unit)	*S (unit)*	Pesan (kali)	Inventory (unit)	*Back-order* (unit)	Biaya pesan (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	Sp-1	118	141	7	5.502	0	136.095,61	1.588.702,50	0,00	1.588.702,50	100,00
2	Sp-2	130	148	8	5.716	29	155.537,84	1.980.594,00	652.500,00	2.633.094,00	93,62
3	M	283	383	5	13.644	0	97.211,15	835.217,46	0,00	835.217,46	100,00
4	S-01	271	334	8	11.580	40	155.537,84	1.203.741,00	270.000,00	1.473.741,00	96,63
5	S-02	296	340	10	12.326	86	194.422,30	1.779.566,25	806.250,00	2.585.816,25	93,29
6	S-03	279	320	8	10.898	19	155.537,84	1.724.445,03	195.225,00	1.919.670,03	98,48
Sub total biaya										11.036.241,24	
Biaya pemesanan gabungan = 10 *x* Rp 80.500,00										805.000,00	
Total Biaya Persediaan Produk *Subcontract* (Rp)										11.841.241,24	

Lampiran J-3

Output metode (s, S)

No	Kode produk	Parameter		Output Simulasi							
		s *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya. setup (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya total (Rp)	Rata-rata *service level (%)*
1	SB-M	70	207	8	5.452	31	833.903,00	1.574.265,00	581.250,00	2.989.418,00	97,18
2	SB-T	59	184	8	4.809	13	890.153,00	1.499.686,65	263.250,00	2.653.089,65	98,71
3	RC-01	51	154	8	4.147	4	562.028,00	1.101.650,55	69.000,00	1.732.678,55	99,52
4	R-100	30	83	13	2.317	18	992.514,25	1.284.544,80	648.000,00	2.925.059,05	95,97
5	RC-02	40	132	9	4.126	2	632.281,50	1.096.071,90	34.500,00	1.762.853,40	99,74
6	CP-01	50	173	8	4.918	8	605.778,00	1.079.255,10	114.000,00	1.799.033,10	99,28
7	Jacket	63	182	9	4.989	43	505.719,00	979.590,15	548.250,00	2.033.559,15	96,20
8	CP-02	46	162	8	4.533	17	655.778,00	1.099.479,15	267.750,00	2.023.007,15	98,17

Lampiran J-4

***Output* Metode (*R, s, S*)**

Percobaan 1

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	SB-M	5,167	307	377	9	11.841	19	938.140,88	3.419.088,75	356.250,00	4.713.479,63	98,32
2	SB-T	5,667	273	336	8	9.991	20	890.153,00	3.115.693,35	405.000,00	4.410.846,35	97,92
3	RC-01	5,000	229	282	10	10.202	0	702.535,00	2.710.161,30	0,00	**3.412.696,30**	100,00
4	R-100	5,167	126	152	9	5.166	10	687.125,25	2.864.030,40	360.000,00	3.911.155,65	97,65
5	RC-02	5,667	202	248	8	9.076	0	562.028,00	2.411.039,40	0,00	**2.973.067,40**	100,00
6	CP-01	5,500	265	327	9	11.148	24	681.500,25	2.446.428,60	342.000,00	**3.469.928,85**	97,48
7	Jacket	4,667	265	326	10	10.995	31	561.910,00	2.158.868,25	395.250,00	**3.116.028,25**	97,20
8	CP-02	5,667	237	297	8	9.484	0	655.778,00	2.300.344,20	0,00	**2.956.122,20**	100,00

Percobaan 2

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	SB-M	5,333	315	382	9	11.617	19	938.140,88	3.354.408,75	356.250,00	**4.648.799,63**	98,32
2	SB-T	5,833	279	340	8	10.173	20	890.153,00	3.172.450,05	405.000,00	4.467.603,05	97,92
3	RC-01	5,167	235	286	9	10.849	0	632.281,50	2.882.036,85	0,00	3.514.318,35	100,00
4	R-100	5,333	129	154	9	5.295	10	687.125,25	2.935.548,00	360.000,00	3.982.673,25	97,65
5	RC-02	5,833	206	251	8	9.874	0	562.028,00	2.623.028,10	0,00	3.185.056,10	100,00
6	CP-01	5,667	271	332	8	11.196	24	605.778,00	2.456.962,20	342.000,00	3.404.740,20	97,48
7	Jacket	4,833	272	331	10	11.085	31	561.910,00	2.176.539,75	395.250,00	3.133.699,75	97,20
8	CP-02	5,833	243	300	8	10.190	0	655.778,00	2.471.584,50	0,00	3.127.362,50	100,00

Percobaan 3

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	SB-M	5,500	322	387	9	11.997	19	938.140,88	3.464.133,75	356.250,00	4.758.524,63	98,32
2	SB-T	5,500	267	332	9	9.723	20	1.001.422,13	3.032.117,55	405.000,00	**4.438.539,68**	97,92
3	RC-01	4,833	224	278	10	10.262	0	702.535,00	2.726.100,30	0,00	3.428.635,30	100,00
4	R-100	5,000	123	150	10	5.124	10	763.472,50	2.840.745,60	360.000,00	3.964.218,10	97,65
5	RC-02	5,500	197	245	9	9.228	0	632.281,50	2.451.418,20	0,00	3.083.699,70	100,00
6	CP-01	5,333	259	323	9	11.216	24	681.500,25	2.461.351,20	342.000,00	3.484.851,45	97,48
7	Jacket	4,500	258	322	11	10.873	31	618.101,00	2.134.913,55	395.250,00	3.148.264,55	97,20
8	CP-02	5,500	232	293	9	9.653	0	737.750,25	2.341.335,15	0,00	3.079.085,40	100,00

Percobaan 4

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
2	SB-T	5,333	262	340	9	9.911	20	1.001.422,13	3.090.745,35	405.000,00	4.497.167,48	97,92
4	R-100	4,833	120	148	10	4.821	10	763.472,50	2.672.762,40	360.000,00	3.796.234,90	97,65

Percobaan 5

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
4	R-100	4,667	117	146	10	4.682	0	763.472,50	2.595.700,80	0,00	**3.359.173,30**	97,65

Percobaan 6

No	Kode Produk	Parameter optimal			Output Simulasi							
		R *(minggu)*	*s* *(unit)*	*S* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
4	R-100	4,500	114	144	11	4.874	0	839.819,75	2.702.145,60	0,00	3.541.965,35	97,65

Lampiran J-5

***Output* Metode (*s, Q*)**

No	Kode Produk	Parameter		Output Simulasi							
		s *(unit)*	*Q* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	32	61	9	2.582	3	574.625,25	1.133.239,80	85.500,00	1.793.365,05	99,40
2	DP-L	51	86	11	3.637	32	509.819,75	1.008.176,40	576.000,00	2.093.996,15	96,28
3	R-60	28	61	8	2.398	0	410.778,00	775.513,20	0,00	1.186.291,20	100

Lampiran J-6

***Output* metode (*R, S*)**

Percobaan 1

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	5,000	98	10	3.248	7	638.472,50	1.425.547,20	199.500,00	2.263.519,70	98,49
2	DP-L	4,167	144	12	3.726	29	556.167,00	1.032.847,20	522.000,00	**2.111.014,20**	96,50
3	R-60	5,500	95	9	3.120	10	462.125,25	1.009.008,00	210.000,00	1.681.133,25	97,61

Percobaan 2

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	5,167	100	9	3.178	7	574.625,25	1.394.824,20	199.500,00	2.168.949,45	98,49
2	DP-L	4,333	147	11	4.444	29	509.819,75	1.231.876,80	522.000,00	2.263.696,55	96,50
3	R-60	5,667	96	8	3.049	10	410.778,00	986.046,60	210.000,00	**1.606.824,60**	97,61

Percobaan 3

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	5,333	101	9	3.160	7	574.625,25	1.386.924,00	199.500,00	2.161.049,25	98,49
2	DP-L	4,000	140	12	4.131	29	556.167,00	1.145.113,20	522.000,00	2.223.280,20	96,50
3	R-60	5,833	98	8	3.406	10	410.778,00	1.101.500,40	210.000,00	1.722.278,40	97,61

Percobaan 4

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	5,500	103	9	3.098	7	574.625,25	1.359.712,20	199.500,00	**2.133.837,45**	98,49
2	DP-L										
3	R-60										

Percobaan 5

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	R-80	5,667	105	8	3.378	7	510.778,00	1.482.604,20	199.500,00	2.192.882,20	98,49
2	DP-L										
3	R-60										

Lampiran J-7

***Output* Metode *simple* (*s, Q*)**

No	Kode Produk	Parameter		Output Simulasi							
		s *(unit)*	*Q* *(unit)*	Setup (kali)	Inventory (unit)	*Back-order* (unit)	Biaya Setup (Rp)	Biaya Simpan (Rp)	Biaya Back-order (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	DP-40	23	64	8	2318	1	310.778,00	481.912,20	13.500,00	806.190,20	99,78
2	DP-25	33	89	9	3027	61	259.625,25	349.618,50	457.500,00	1.066.743,75	91,56

Lampiran J-8

***Output* metode *simple* (*R, S*)**

No	Kode Produk	Parameter		Output Simulasi							
		R *(minggu)*	*S* *(unit)*	*Set up* (kali)	*Inventory* (unit)	*Back-order* (unit)	Biaya *set up* (Rp)	Biaya simpan (Rp)	Biaya *back-order* (Rp)	Biaya Total (Rp)	Rata-rata *service level (%)*
1	DP-40	5,910	91	9	2.692	26	349.625,25	559.666,80	351.000,00	1.260.292,05	94,87
2	DP-25	5,641	127	9	3.929	27	259.625,25	453.799,50	202.500,00	915.924,75	96,37

KOMENTAR DOSEN PENGUJI

Komentar dan Saran:

1. Baik.
2. Sudah sangat baik
3. Analisis sensitivitas untuk distribusi permintaan perlu penjelasan lebih detil.
4. Perbaiki salah ketik
5. Batasan: produk yang diamati
6. Cek kutipan referensi (ct: hal 2-1), daftar pustaka
7. Asumsi: kapasitas gudang tidak terbatas.
8. Saran: hal-hal yang harus dilakukan apabila hasil penelitian akan diterapkan.

DATA PENULIS

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