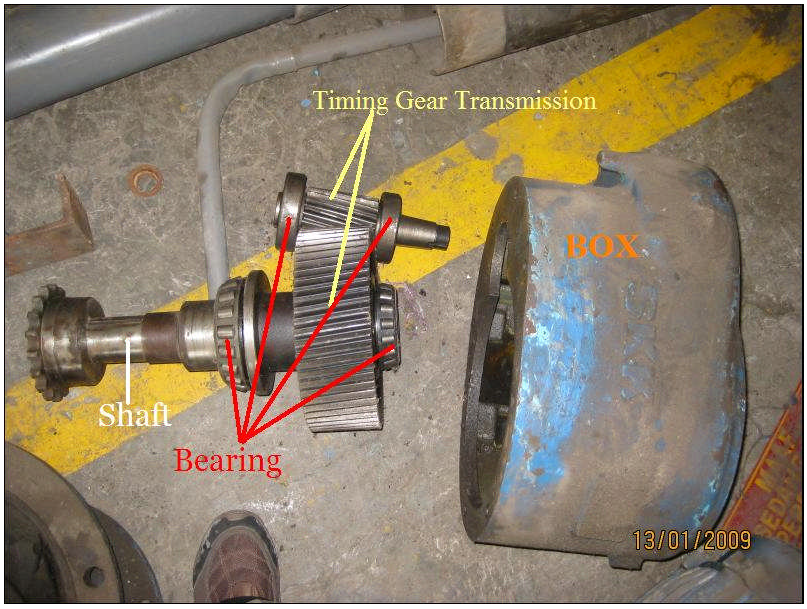
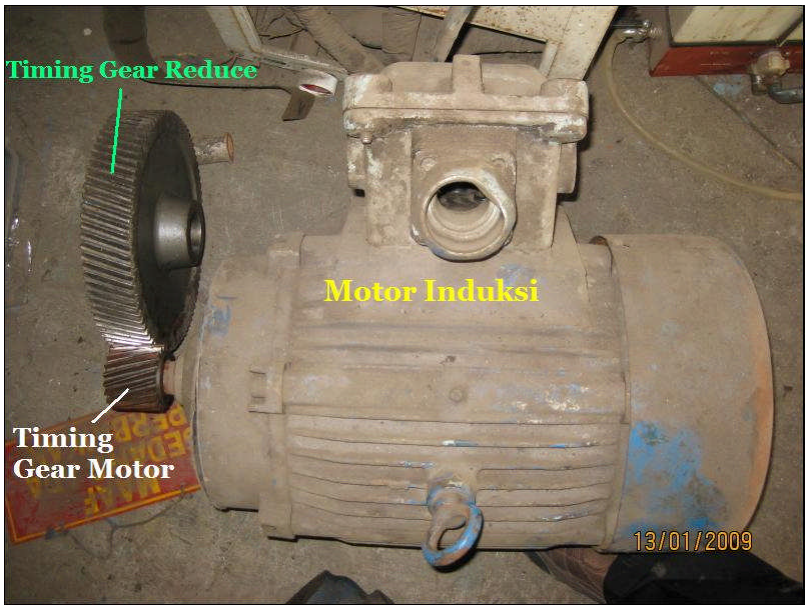
LAMPIRAN A



Gambar A-1 Bagian dalam *gearbox*



Gambar A-2 *Timing gear* dengan motor induksi

LAMPIRAN B

Tabel B-1 Data kerusakan reaktor kimia 1

Tanggal	Komponen	Keterangan
25/01/2006	*Bearing*	Ganti
09/07/2006	*Bearing + Oil Seal*	Ganti
26/10/2006	*Bearing*	Ganti
04/06/2007	*Bearing*	Ganti
09/05/2007	*Oil Seal*	Ganti
11/12/2007	*Bearing*	Ganti
02/09/2007	*Gear Transmission*	Ganti
07/05/2008	*Bearing + Oil Seal*	Ganti
24/08/2008	*Bearing + Oil Seal*	Ganti
21/12/2008	*Bearing*	Ganti

Tabel B-2 Data kerusakan reaktor kimia 2

Tanggal	Komponen	Keterangan
09/01/2006	*Bearing*	Ganti
12/04/2006	*Bearing + Oil Seal*	Ganti
20/08/2006	*Bearing*	Ganti
21/09/2006	*Oil Seal*	Ganti
01/10/2006	*Shaft*	Perbaiki
20/10/2006	*Bearing*	Ganti
15/12/2006	*Bearing*	Ganti
13/01/2007	*Gear Box*	Ganti
19/03/2007	*Bearing + Oil Seal*	Ganti
19/04/2007	*Transmission Gear*	Ganti
13/06/2007	*Bearing + Oil Seal*	Ganti
02/10/2007	*Bearing*	Ganti
17/11/2007	*Bearing + Oil Seal + Reduce Gear*	Ganti
03/02/2008	*Bearing*	Ganti
13/05/2008	*Bearing*	Ganti
28/08/2008	*Bearing*	Ganti
30/11/2008	*Bearing + Oil Seal*	Ganti

Tabel B-3 Data kerusakan reaktor kimia 3

Tanggal	Komponen	Keterangan
17/01/2006	*Bearing*	Ganti
08/05/2006	*Bearing*	Ganti
07/08/2006	*Bearing + Oil Seal + Transmission Gear*	Ganti
05/10/2006	*Bearing*	Ganti
18/12/2006	*Bearing*	Ganti
01/03/2007	*Bearing + Oil Seal*	Ganti
03/06/2007	*Bearing*	Ganti
24/02/2007	*Shaft*	Perbaiki
16/11/2007	*Bearing*	Ganti
28/05/2007	*Oil Seal*	Ganti
18/06/2007	*Gear Box*	Ganti
11/01/2008	*Bearing*	Ganti
28/04/2008	*Bearing*	Ganti
29/03/2008	*Oil Seal*	Ganti
15/08/2008	*Bearing*	Ganti
09/12/2008	*Bearing*	Ganti

Tabel B-4 Data kerusakan reaktor kimia 4

Tanggal	Komponen	Keterangan
17/01/2006	*Bearing*	Ganti
08/05/2006	*Bearing*	Ganti
07/08/2006	*Bearing + Oil Seal + Transmission Gear*	Ganti
05/10/2006	*Bearing*	Ganti
18/12/2006	*Bearing*	Ganti
01/03/2007	*Bearing + Oil Seal*	Ganti
03/06/2007	*Bearing*	Ganti
24/08/2007	*Shaft*	Perbaiki
16/11/2007	*Bearing*	Ganti
28/05/2007	*Oil Seal*	Ganti
18/10/2007	*Gear Box*	Ganti
11/01/2008	*Bearing*	Ganti
28/04/2008	*Bearing*	Ganti
29/06/2008	*Oil Seal*	Ganti
15/08/2008	*Bearing*	Ganti
09/12/2008	*Bearing*	Ganti

Tabel B-5 Data kerusakan reaktor kimia 5

Tanggal	Komponen	Keterangan
02/02/2006	*Shaft*	Perbaiki
18/05/2006	*Gear Box*	Ganti
28/11/2006	*Bearing*	Ganti
05/03/2007	*Bearing*	Ganti
07/06/2007	*Bearing*	Ganti
10/09/2007	*Bearing*	Ganti
29/01/2008	*Bearing*	Ganti
11/08/2008	*Bearing*	Ganti
17/12/2008	*Bearing*	Ganti

Tabel B-6 Data kerusakan reaktor kimia 6

Tanggal	Komponen	Keterangan
14/02/2006	*Bearing*	Ganti
07/06/2006	*Bearing + Oil Seal*	Ganti
03/12/2006	*Bearing*	Ganti
22/02/2007	*Bearing*	Ganti
20/06/2007	*Bearing + Oil Seal*	Ganti
09/12/2007	*Bearing*	Ganti
22/05/2008	*Bearing*	Ganti
14/09/2008	*Bearing*	Ganti
27/12/2008	*Bearing*	Ganti

Tabel B-7 Data kerusakan reaktor kimia 7

Tanggal	Komponen	Keterangan
24/01/2006	*Bearing*	Ganti
13/05/2006	*Bearing + Transmission Gear*	Ganti
31/10/2006	*Bearing + Oil Seal*	Ganti
01/02/2007	*Bearing*	Ganti
20/06/2007	*Bearing*	Ganti
23/11/2007	*Bearing*	Ganti
15/03/2008	*Bearing*	Ganti
02/06/2008	*Bearing + Oil Seal*	Ganti
13/12/2008	*Bearing*	Ganti

Tabel B-8 Data kerusakan reaktor kimia 8

Tanggal	Komponen	Keterangan
22/02/2006	*Bearing*	Ganti
10/08/2006	*Bearing*	Ganti
26/01/2007	*Bearing*	Ganti
09/07/2007	*Bearing*	Ganti
04/12/2007	*Bearing*	Ganti
02/01/2008	*Oil Seal*	Ganti
19/06/2008	*Bearing*	Ganti
21/12/2008	*Bearing*	Ganti

Tabel B-9 Data kerusakan reaktor kimia 9

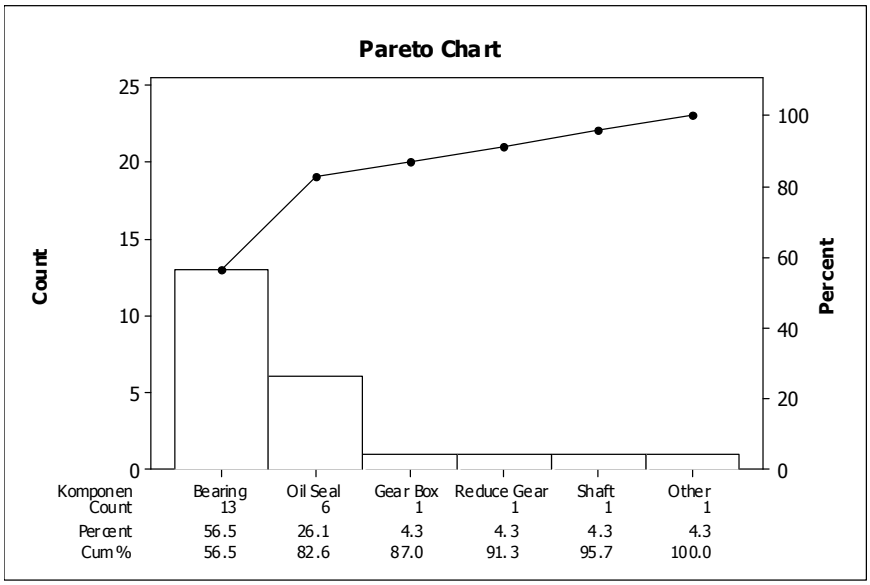
Tanggal	Komponen	Keterangan
27/03/2006	*Bearing*	Ganti
28/07/2006	*Bearing + Oil Seal*	Ganti
12/12/2006	*Bearing*	Ganti
26/05/2007	*Bearing*	Ganti
03/11/2007	*Bearing*	Ganti
06/04/2008	*Bearing*	Ganti
07/08/2008	*Bearing*	Ganti
26/12/2008	*Bearing*	Ganti

Tabel B-10 Data kerusakan reaktor kimia 10

Tanggal	Komponen	Keterangan
13/01/2006	*Transmission Gear*	Ganti
11/05/2006	*Bearing*	Ganti
06/10/2006	*Bearing*	Ganti
06/01/2007	*Bearing*	Ganti
30/07/2007	*Bearing + Oil Seal*	Ganti
20/01/2008	*Bearing*	Ganti
30/05/2008	*Bearing + Oil Seal*	Ganti
30/08/2008	*Bearing*	Ganti
10/12/2008	*Bearing*	Ganti

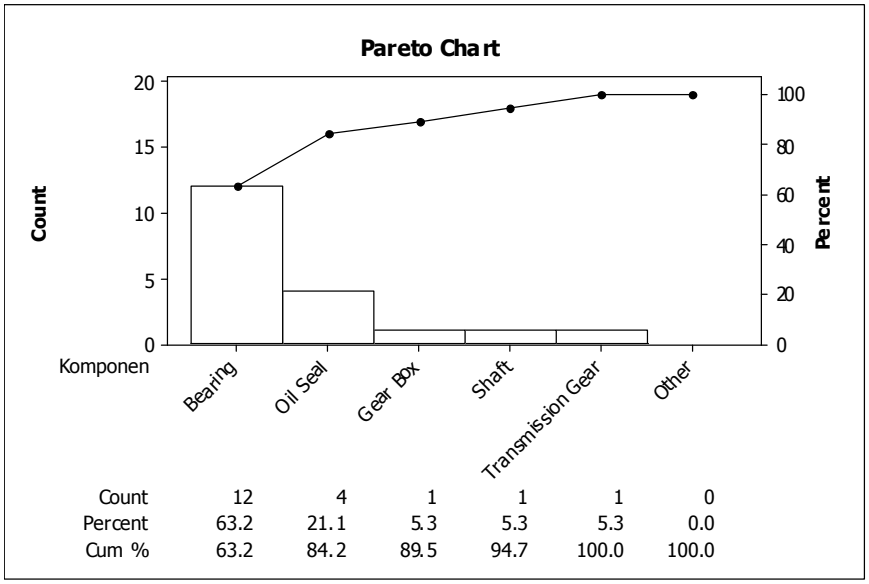
LAMPIRAN C

1. Penentuan komponen kritis *gearbox* reaktor kimia 2



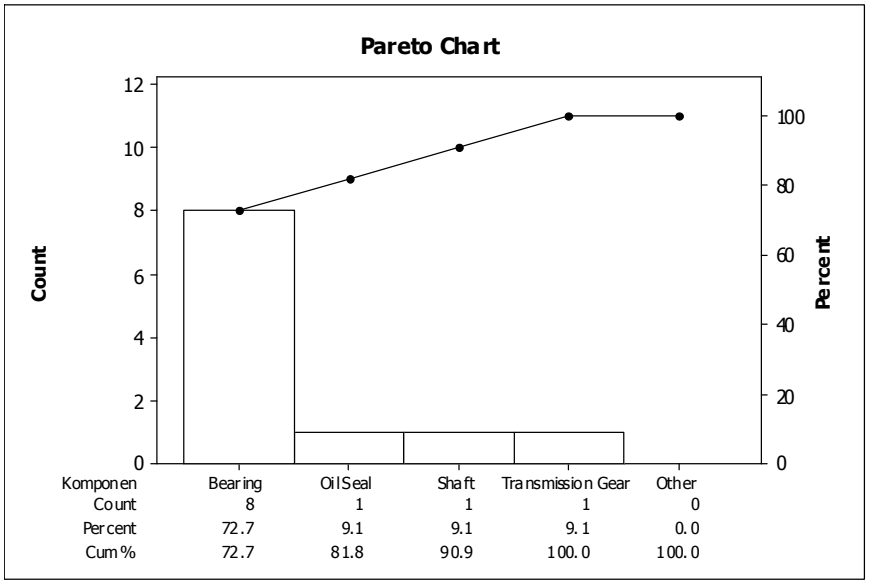
Gambar 1 Pareto *chart gearbox* reaktor kimia 2

2. Penentuan komponen kritis *gearbox* reaktor kimia 3



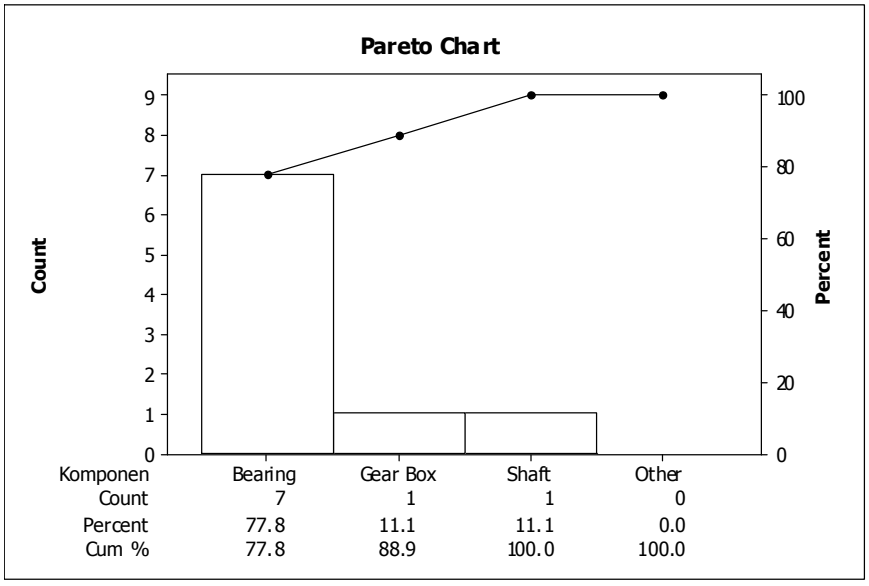
Gambar 2 Pareto *chart gearbox* reaktor kimia 3

3. Penentuan komponen kritis *gearbox* reaktor kimia 4



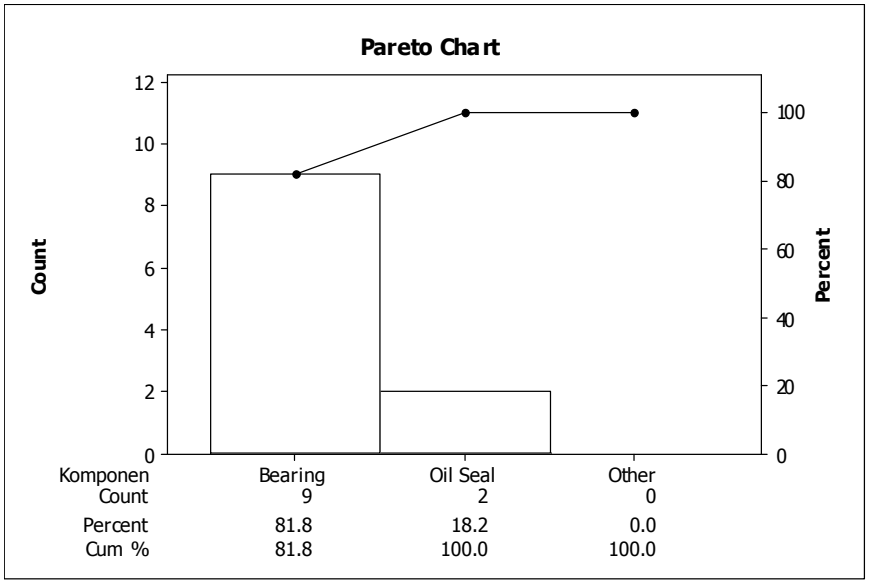
Gambar 3 Pareto *chart gearbox* reaktor kimia 4

4. Penentuan komponen kritis *gearbox* reaktor kimia 5



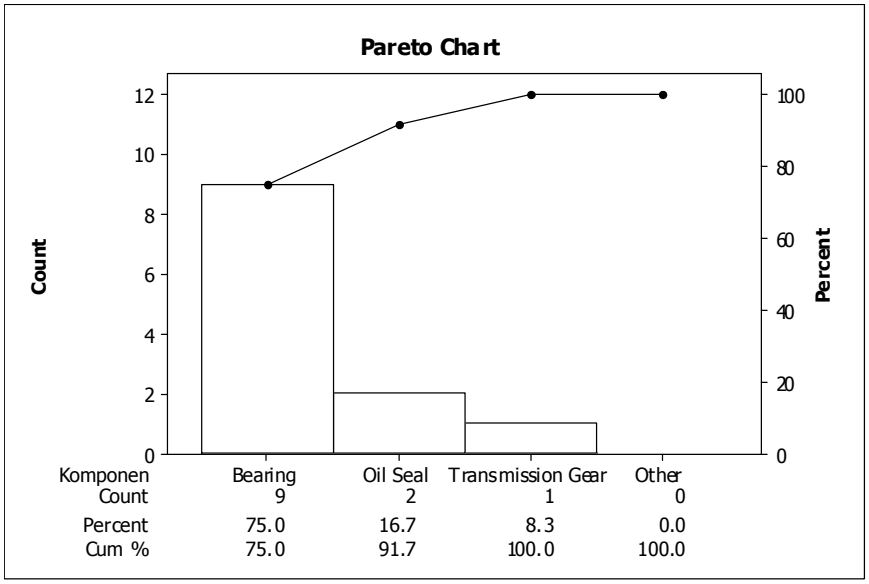
Gambar 4 Pareto *chart gearbox* reaktor kimia 5

5. Penentuan komponen kritis *gearbox* reaktor kimia 6



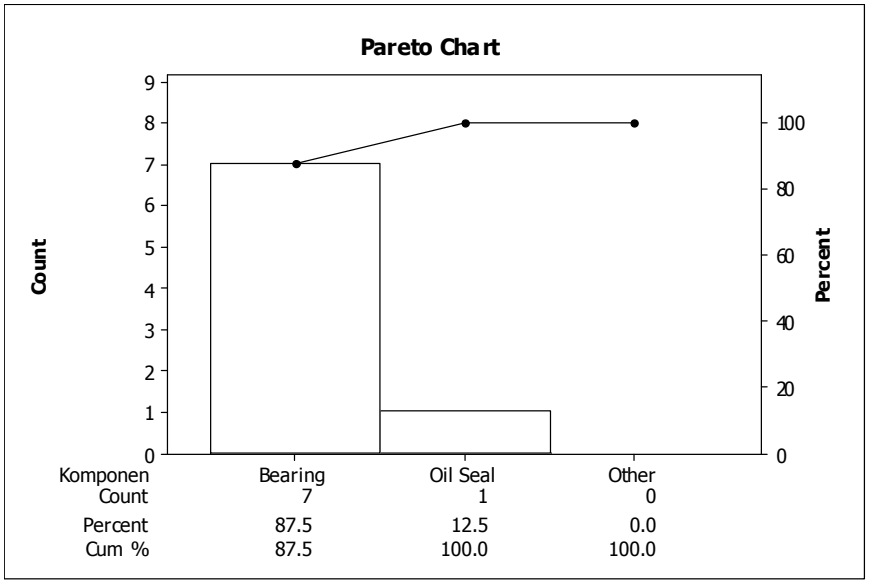
Gambar 5 Pareto *chart gearbox* reaktor kimia 6

6. Penentuan komponen kritis *gearbox* reaktor kimia 7



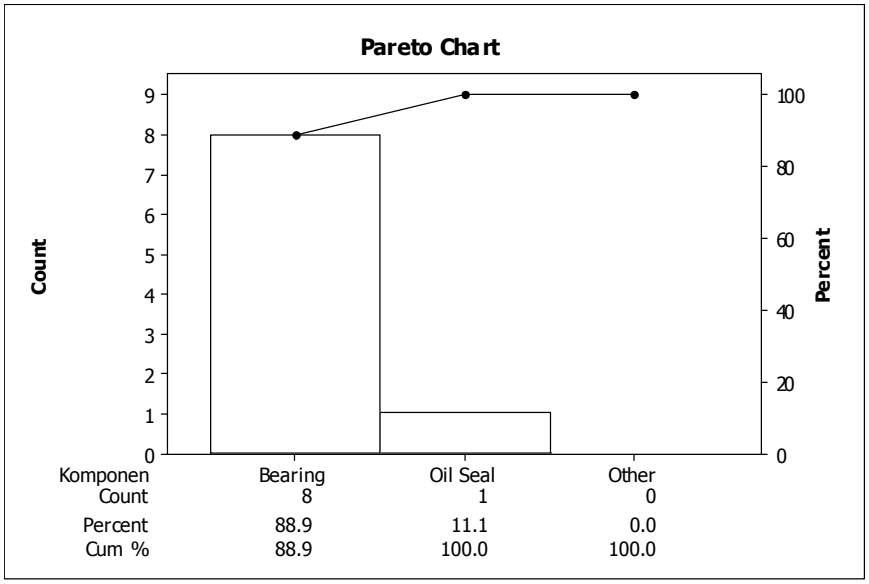
Gambar 6 Pareto *chart gearbox* reaktor kimia 7

7. Penentuan komponen kritis *gearbox* reaktor kimia 8



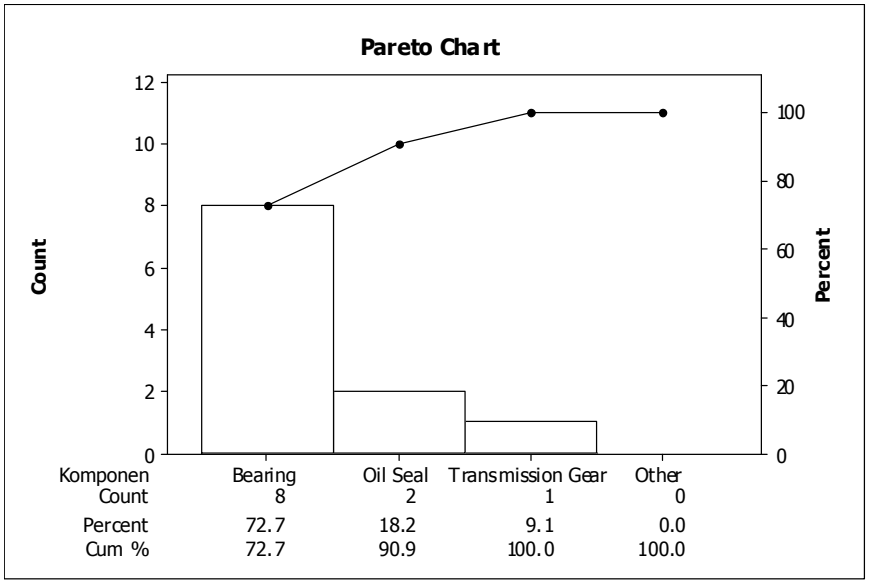
Gambar 7 Pareto *chart gearbox* reaktor kimia 8

8. Penentuan komponen kritis *gearbox* reaktor kimia 9



Gambar 4.8 Pareto *chart gearbox* reaktor kimia 9

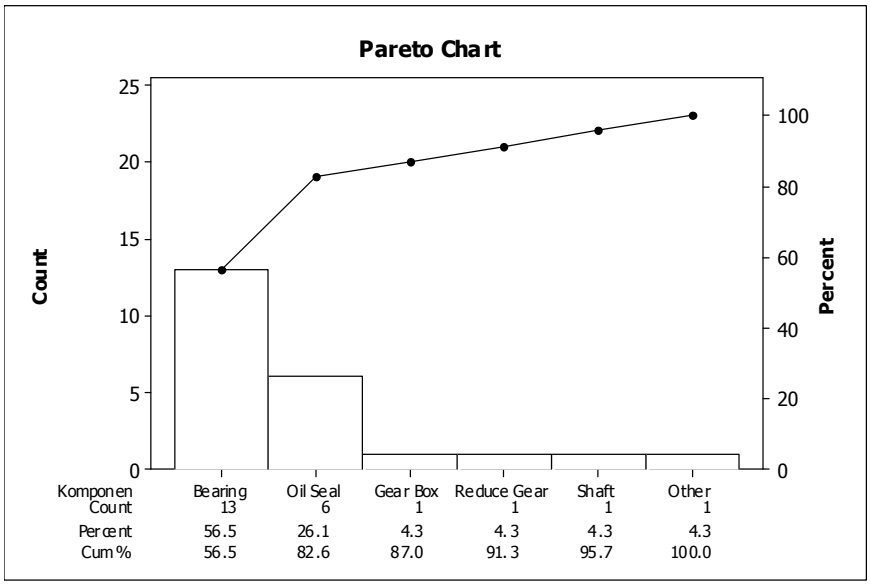
9. Penentuan komponen kritis *gearbox* reaktor kimia 10



Gambar 9 Pareto *chart gearbox* reaktor kimia 10

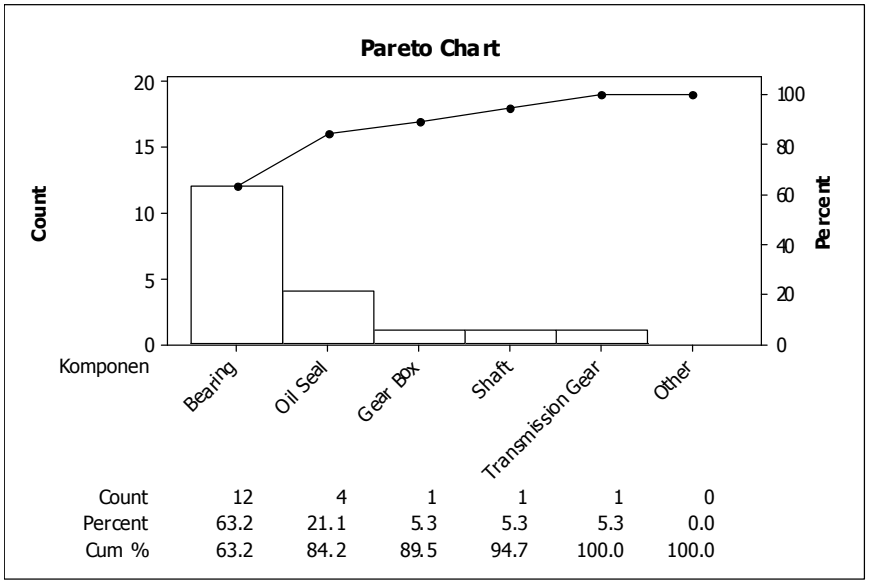
LAMPIRAN C

10. Penentuan komponen kritis *gearbox* reaktor kimia 2



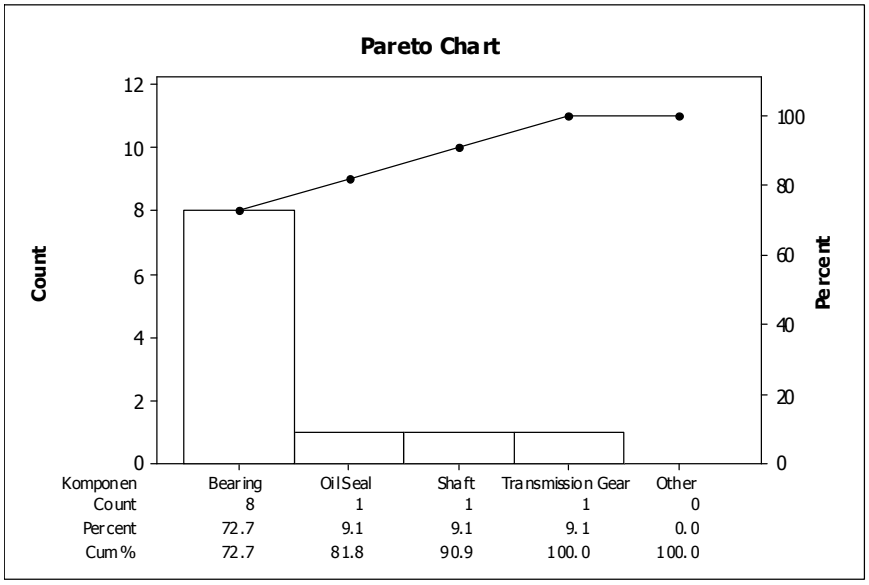
Gambar 1 Pareto *chart gearbox* reaktor kimia 2

11. Penentuan komponen kritis *gearbox* reaktor kimia 3



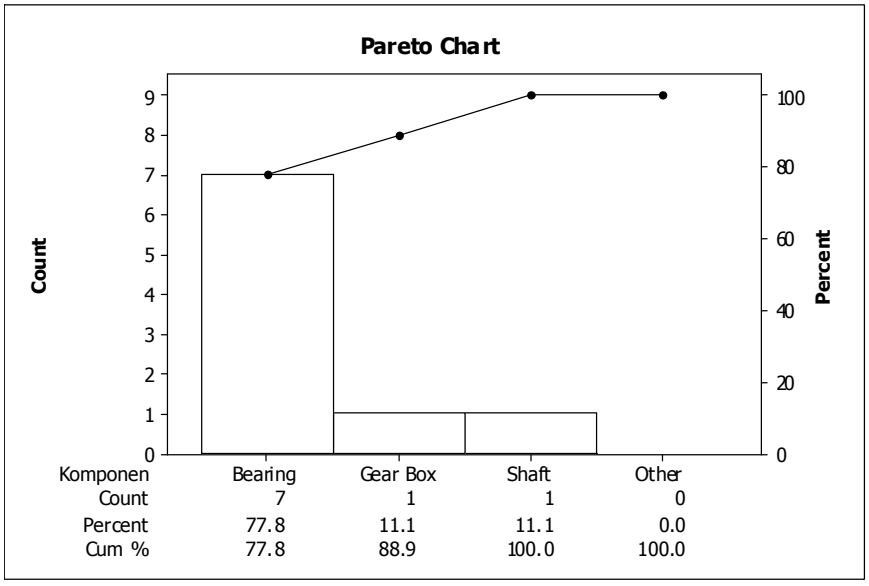
Gambar 2 Pareto *chart gearbox* reaktor kimia 3

12. Penentuan komponen kritis *gearbox* reaktor kimia 4



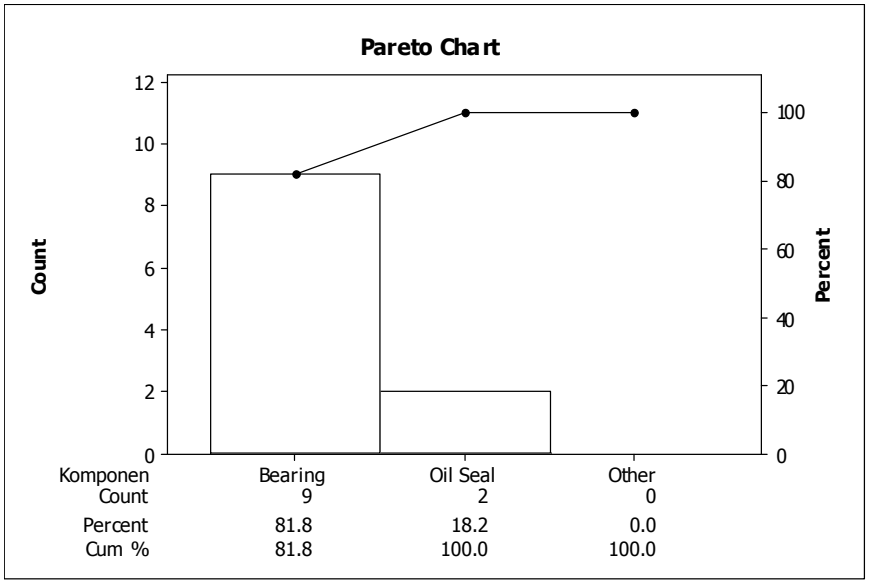
Gambar 3 Pareto *chart gearbox* reaktor kimia 4

13. Penentuan komponen kritis *gearbox* reaktor kimia 5



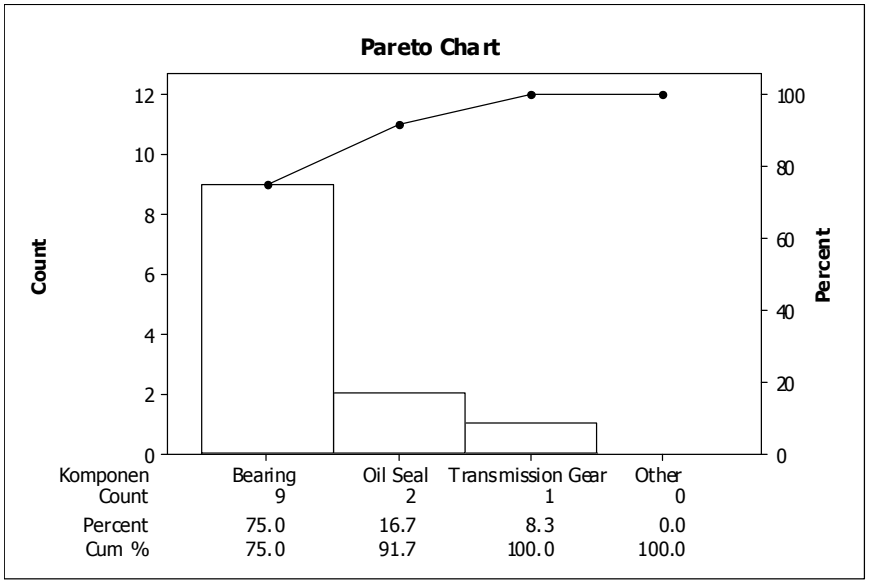
Gambar 4 Pareto *chart gearbox* reaktor kimia 5

14. Penentuan komponen kritis *gearbox* reaktor kimia 6



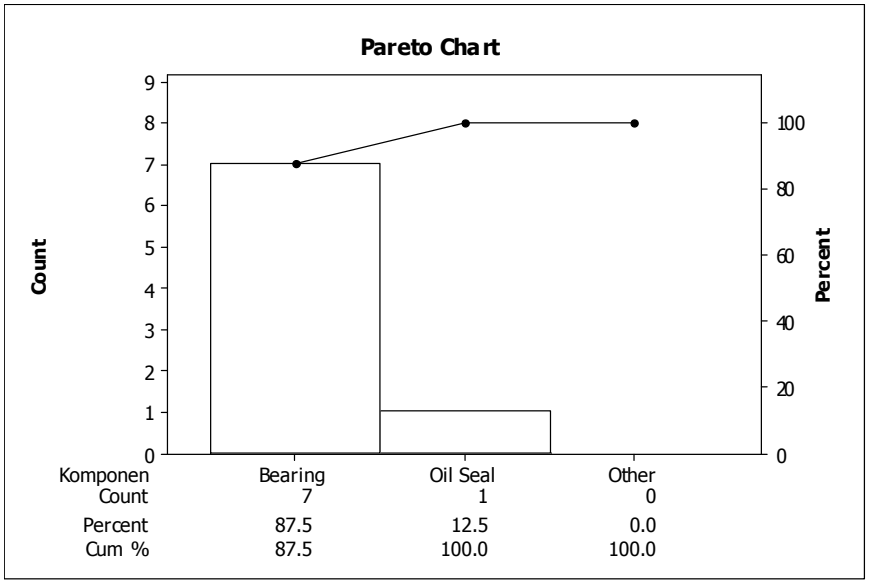
Gambar 5 Pareto *chart gearbox* reaktor kimia 6

15. Penentuan komponen kritis *gearbox* reaktor kimia 7



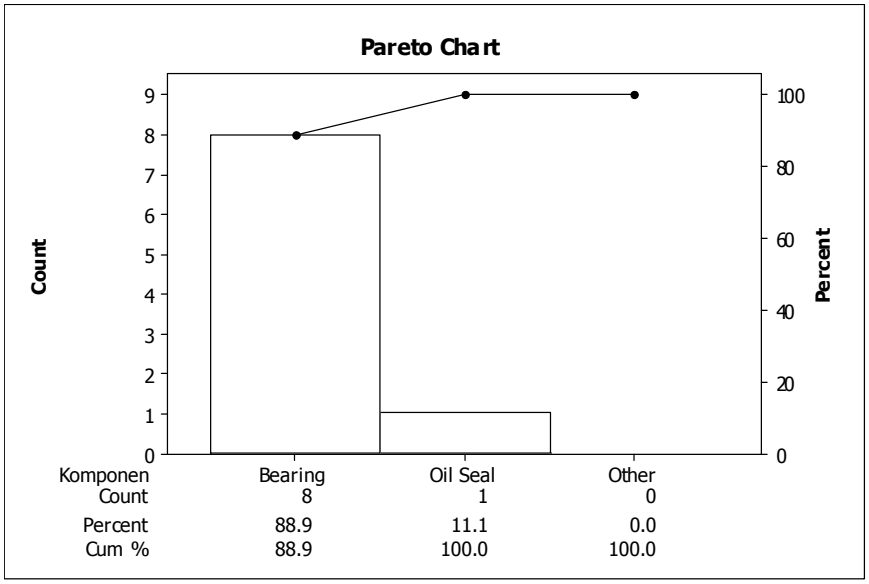
Gambar 6 Pareto *chart gearbox* reaktor kimia 7

16. Penentuan komponen kritis *gearbox* reaktor kimia 8



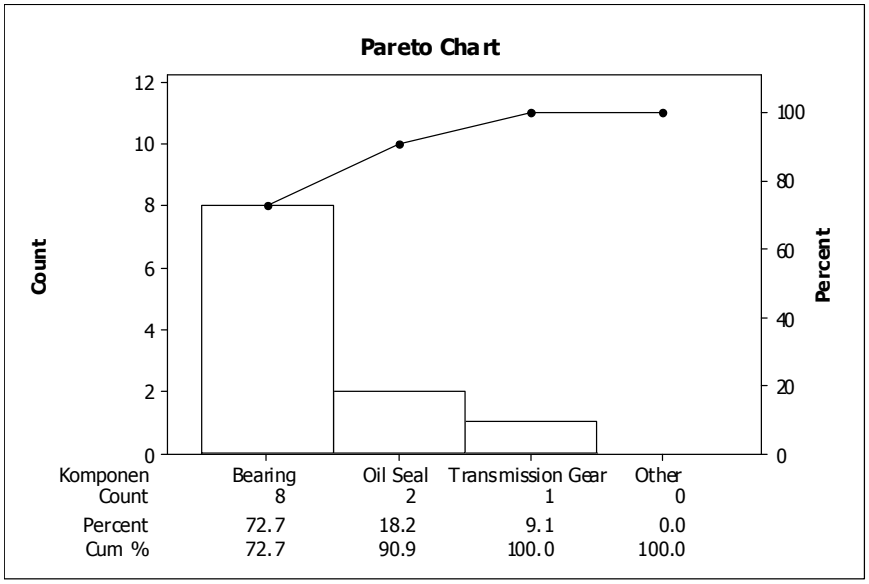
Gambar 7 Pareto *chart gearbox* reaktor kimia 8

17. Penentuan komponen kritis *gearbox* reaktor kimia 9



Gambar 4.8 Pareto *chart gearbox* reaktor kimia 9

18. Penentuan komponen kritis *gearbox* reaktor kimia 10



Gambar 9 Pareto *chart gearbox* reaktor kimia 10

LAMPIRAN D

Distribution Identification for R 1

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
7	0	2728.71	776.773	2664	1960	3968	0.577582	-1.01978

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.303	0.476	
Lognormal	**0.290**	**0.509**	
3-Parameter Lognormal	0.664	*	0.007
Exponential	1.811	0.010	
2-Parameter Exponential	0.297	>0.250	0.000
Weibull	0.329	>0.250	
3-Parameter Weibull	0.553	0.161	0.001
Smallest Extreme Value	0.379	>0.250	
Largest Extreme Value	0.371	>0.250	
Gamma	0.341	>0.250	
3-Parameter Gamma	0.457	*	0.001
Logistic	0.324	>0.250	
Loglogistic	0.322	>0.250	
3-Parameter Loglogistic	0.589	*	0.005

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	2728.71429		776.77339	
Lognormal*	**7.87766**		**0.27982**	
3-Parameter Lognormal	4.85840		3.17132	1959.80400
Exponential			2728.71421	
2-Parameter Exponential			768.91029	1959.80400
Weibull		4.12020	3008.36494	
3-Parameter Weibull		0.49447	506.18154	1959.80400
Smallest Extreme Value	3101.44317		713.90724	
Largest Extreme Value	2388.29712		564.06598	
Gamma		14.90111	183.12159	
3-Parameter Gamma		0.37258	2063.75636	1959.80400
Logistic	2679.93048		436.16184	
Loglogistic	7.86939		0.16013	
3-Parameter Loglogistic	5.40271		1.76337	1959.80400

Distribution Identification for R 2

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
12	0	1585.33	433.800	1684.5	843	2339	-0.232528	-0.329447

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.277	0.587	
Lognormal	0.470	0.201	
3-Parameter Lognormal	0.301	*	0.245
Exponential	3.026	<0.003	
2-Parameter Exponential	1.229	0.021	0.000
Weibull	**0.264**	**>0.250**	
3-Parameter Weibull	0.281	>0.500	0.902

Smallest Extreme Value	0.267	>0.250	
Largest Extreme Value	0.493	0.206	
Gamma	0.416	>0.250	
3-Parameter Gamma	1.662	*	1.000
Logistic	0.286	>0.250	
Loglogistic	0.446	0.218	
3-Parameter Loglogistic	0.290	*	0.279

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	1585.33333		433.80040	
Lognormal*	7.32975		0.30130	
3-Parameter Lognormal	10.58305		0.01054	-3.78765E+04
Exponential			1585.33333	
2-Parameter Exponential			742.41763	842.91570
Weibull		**4.40492**	**1742.35459**	
3-Parameter Weibull		3.86451	1547.29173	188.42618
Smallest Extreme Value	1788.32817		378.71641	
Largest Extreme Value	1373.69333		404.09694	
Gamma		13.05260	121.45729	
3-Parameter Gamma		0.73515	1009.89166	842.91570
Logistic	1604.80105		241.39271	
Loglogistic	7.36133		0.16506	
3-Parameter Loglogistic	10.58724		0.00610	-3.80222E+04

Distribution Identification for R 3

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
11	0	1729.64	566.859	1682	1002	2992	0.853221	1.35036

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.360	0.379	
Lognormal	**0.295**	**0.532**	
3-Parameter Lognormal	0.329	*	0.864
Exponential	2.550	<0.003	
2-Parameter Exponential	0.595	0.196	0.000
Weibull	0.372	>0.250	
3-Parameter Weibull	1.013	0.013	0.062
Smallest Extreme Value	0.697	0.057	
Largest Extreme Value	0.324	>0.250	
Gamma	0.307	>0.250	
3-Parameter Gamma	1.031	*	0.056
Logistic	0.315	>0.250	
Loglogistic	0.314	>0.250	
3-Parameter Loglogistic	0.319	*	0.952

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	1729.63636		566.85858	
Lognormal*	**7.40811**		**0.32386**	
3-Parameter Lognormal	7.22626		0.36988	259.06152
Exponential			1729.63621	
2-Parameter Exponential			727.73656	1001.89980
Weibull		3.35802	1924.60008	
3-Parameter Weibull		0.80036	679.13210	1001.89980
Smallest Extreme Value	2017.57109		609.33089	
Largest Extreme Value	1478.11799		437.26336	
Gamma		10.67786	161.98344	
3-Parameter Gamma		0.61210	1188.91974	1001.89980
Logistic	1697.56826		301.30835	
Loglogistic	7.41400		0.18030	

3-Parameter Loglogistic	7.33058	0.19652	129.17854

Distribution Identification for R 4

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
8	0	2387.25	288.562	2342	2013	2769	0.0107726	-1.41559

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	**0.300**	**0.503**	
Lognormal	0.303	0.492	
3-Parameter Lognormal	0.348	*	0.883
Exponential	2.910	<0.003	
2-Parameter Exponential	0.534	0.213	0.000
Weibull	0.360	>0.250	
3-Parameter Weibull	0.915	0.022	0.087
Smallest Extreme Value	0.377	>0.250	
Largest Extreme Value	0.374	>0.250	
Gamma	0.349	>0.250	
3-Parameter Gamma	0.846	*	0.042
Logistic	0.330	>0.250	
Loglogistic	0.330	>0.250	
3-Parameter Loglogistic	0.329	*	0.950

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	**2387.25000**		**288.56232**	
Lognormal*	7.77144		0.12182	
3-Parameter Lognormal	9.74485		0.01582	-1.46810E+04
Exponential			2387.25000	
2-Parameter Exponential			374.45130	2012.79870
Weibull		10.11010	2508.67640	
3-Parameter Weibull		0.70215	329.64836	2012.79870
Smallest Extreme Value	2521.63556		240.59210	
Largest Extreme Value	2253.16659		240.81499	
Gamma		77.59738	30.76457	
3-Parameter Gamma		0.53716	697.09047	2012.79870
Logistic	2385.32538		165.09936	
Loglogistic	7.77297		0.06948	
3-Parameter Loglogistic	8.30364		0.04084	-1658.99310

Distribution Identification for R 5

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
6	0	2251.5	650.855	2125	1701	3310	0.838708	-0.362581

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.492	0.128	
Lognormal	0.494	0.127	
3-Parameter Lognormal	0.436	*	0.001
Exponential	1.631	0.015	
2-Parameter Exponential	0.555	0.167	0.000
Weibull	0.518	0.171	
3-Parameter Weibull	**0.423**	**0.345**	**0.000**
Smallest Extreme Value	0.550	0.139	
Largest Extreme Value	0.630	0.081	
Gamma	0.563	0.163	
3-Parameter Gamma	0.483	*	0.000
Logistic	0.524	0.119	

Loglogistic	0.538	0.103	
3-Parameter Loglogistic	0.494	*	0.001

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	2251.50000		650.85536	
Lognormal*	7.68630		0.27804	
3-Parameter Lognormal	4.17618		3.22673	1700.82990
Exponential			2251.49998	
2-Parameter Exponential			550.67010	1700.82990
Weibull		4.03743	2482.94446	
3-Parameter Weibull		**0.43059**	**282.88665**	**1900.82990**
Smallest Extreme Value	2563.89563		612.88629	
Largest Extreme Value	1975.88666		442.31803	
Gamma		15.29120	147.24160	
3-Parameter Gamma		0.31966	1722.68059	1700.82990
Logistic	2199.08761		356.16232	
Loglogistic	7.67137		0.15676	
3-Parameter Loglogistic	4.54295		1.89084	1700.82990

Distribution Identification for R 6

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
8	0	2371.63	666.507	2096	1449	3224	0.244622	-1.65600

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.564	0.097	
Lognormal	**0.469**	**0.177**	
3-Parameter Lognormal	0.518	*	0.966
Exponential	2.096	0.005	
2-Parameter Exponential	0.712	0.099	0.000
Weibull	0.641	0.080	
3-Parameter Weibull	0.519	0.199	0.372
Smallest Extreme Value	0.736	0.044	
Largest Extreme Value	0.496	0.198	
Gamma	0.557	0.170	
3-Parameter Gamma	1.179	*	0.124
Logistic	0.607	0.068	
Loglogistic	0.511	0.139	
3-Parameter Loglogistic	0.471	*	0.760

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal	2371.62500		666.50730	
Lognormal	**7.73599**		**0.28620**	
3-Parameter Lognormal	7.66267		0.28805	155.71473
Exponential			2371.62480	
2-Parameter Exponential			922.76987	1448.85510
Weibull		4.27051	2613.44672	
3-Parameter Weibull		1.70301	1186.68052	1309.69744
Smallest Extreme Value	2687.72342		570.65510	
Largest Extreme Value	2068.94576		529.47147	
Gamma		14.31350	165.69150	
3-Parameter Gamma		0.56335	1638.01148	1448.85510
Logistic	2338.09826		385.05185	
Loglogistic	7.73273		0.16250	
3-Parameter Loglogistic	7.28202		0.25441	801.08420

Distribution Identification for R 7

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
8	0	2371.5	724.591	2276	1412	3489	0.252924	-1.15784

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.178	0.883	
Lognormal	**0.164**	**0.908**	
3-Parameter Lognormal	0.197	*	0.989
Exponential	1.883	0.009	
2-Parameter Exponential	0.431	>0.250	0.000
Weibull	0.202	>0.250	
3-Parameter Weibull	0.244	>0.500	0.328
Smallest Extreme Value	0.263	>0.250	
Largest Extreme Value	0.198	>0.250	
Gamma	0.194	>0.250	
3-Parameter Gamma	0.894	*	0.062
Logistic	0.212	>0.250	
Loglogistic	0.198	>0.250	
3-Parameter Loglogistic	0.200	*	0.911

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal	2371.50000		724.59092	
Lognormal	**7.72902**		**0.31408**	
3-Parameter Lognormal	7.75738		0.28557	-62.71781
Exponential			2371.49991	
2-Parameter Exponential			959.64119	1411.85880
Weibull		3.90192	2626.26243	
3-Parameter Weibull		1.38906	1119.78327	1341.38327
Smallest Extreme Value	2715.34757		640.79088	
Largest Extreme Value	2041.41056		578.90803	
Gamma		11.99504	197.70672	
3-Parameter Gamma		0.53929	1779.46667	1411.85880
Logistic	2349.67591		412.90537	
Loglogistic	7.73415		0.17890	
3-Parameter Loglogistic	7.49859		0.22730	462.72594

Distribution Identification for R 8

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
6	0	3012.17	216.774	3048	2651	3323	-0.505167	2.10938

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	**0.450**	**0.171**	
Lognormal	0.470	0.149	
3-Parameter Lognormal	0.476	*	0.676
Exponential	2.441	<0.003	
2-Parameter Exponential	0.983	0.027	0.000
Weibull	0.470	0.218	
3-Parameter Weibull	0.467	0.179	0.671
Smallest Extreme Value	0.485	0.204	
Largest Extreme Value	0.589	0.100	
Gamma	0.489	0.232	
3-Parameter Gamma	1.332	*	1.000
Logistic	0.452	0.200	
Loglogistic	0.466	0.185	
3-Parameter Loglogistic	0.453	*	0.709

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	**3012.16667**		**216.77400**	

Lognormal*	8.00821		0.07321	
3-Parameter Lognormal	11.44038		0.00213	-8.99901E+04
Exponential			3012.16667	
2-Parameter Exponential			361.43177	2650.73490
Weibull		17.32032	3102.32651	
3-Parameter Weibull		5.21330	962.59422	2126.63978
Smallest Extreme Value	3107.83303		178.02686	
Largest Extreme Value	2909.55928		204.80003	
Gamma		226.74488	13.28439	
3-Parameter Gamma		0.57495	628.63188	2650.73490
Logistic	3022.35320		107.84022	
Loglogistic	8.01317		0.03620	
3-Parameter Loglogistic	11.41823		0.00119	-8.79429E+04

Distribution Identification for R 9

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
7	0	2586.43	309.759	2546	2205	2959	-0.0994748	-1.85949

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.306	0.466	
Lognormal	0.315	0.440	
3-Parameter Lognormal	0.366	*	0.796
Exponential	2.558	<0.003	
2-Parameter Exponential	0.468	>0.250	0.000
Weibull	0.361	>0.250	
3-Parameter Weibull	0.797	0.042	0.050
Smallest Extreme Value	0.361	>0.250	
Largest Extreme Value	0.394	>0.250	
Gamma	0.371	>0.250	
3-Parameter Gamma	0.723	*	0.022
Logistic	0.338	>0.250	
Loglogistic	0.344	>0.250	
3-Parameter Loglogistic	0.338	*	0.825

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	2586.42857		309.75897	
Lognormal*	7.85179		0.12111	
3-Parameter Lognormal	11.26171		0.00369	-7.51992E+04
Exponential			2586.42857	
2-Parameter Exponential			381.64907	2204.77950
Weibull		10.60976	2715.01340	
3-Parameter Weibull		0.63270	315.76256	2204.77950
Smallest Extreme Value	2727.69151		246.04249	
Largest Extreme Value	2442.91606		256.51702	
Gamma		80.30226	32.20866	
3-Parameter Gamma		0.48353	789.29246	2204.77950
Logistic	2589.72477		178.34569	
Loglogistic	7.85476		0.06953	
3-Parameter Loglogistic	11.24505		0.00233	-7.39110E+04

Distribution Identification for R 10

Descriptive Statistics

N	N*	Mean	StDev	Median	Minimum	Maximum	Skewness	Kurtosis
7	0	2428.57	779.345	2360	1664	3680	0.596392	-0.965512

Goodness of Fit Test

Distribution	AD	P	LRT P
Normal	0.306	0.466	

Lognormal	**0.292**	**0.505**	
3-Parameter Lognormal	0.976	*	0.000
Exponential	1.663	0.015	
2-Parameter Exponential	0.306	>0.250	0.000
Weibull	0.328	>0.250	
3-Parameter Weibull	0.887	0.024	0.000
Smallest Extreme Value	0.384	>0.250	
Largest Extreme Value	0.374	>0.250	
Gamma	0.343	>0.250	
3-Parameter Gamma	0.740	*	0.000
Logistic	0.326	>0.250	
Loglogistic	0.325	>0.250	
3-Parameter Loglogistic	0.888	*	0.000

ML Estimates of Distribution Parameters

Distribution	Location	Shape	Scale	Threshold
Normal*	2428.57143		779.34478	
Lognormal*	**7.75185**		**0.31597**	
3-Parameter Lognormal	4.27110		3.90424	1663.83360
Exponential			2428.57140	
2-Parameter Exponential			764.73783	1663.83360
Weibull		3.66242	2697.60072	
3-Parameter Weibull		0.39151	404.58537	1663.83360
Smallest Extreme Value	2803.02597		719.08374	
Largest Extreme Value	2087.57938		564.16477	
Gamma		11.73561	206.94032	
3-Parameter Gamma		0.29237	2615.61640	1663.83360
Logistic	2378.18339		436.87001	
Loglogistic	7.74329		0.18097	
3-Parameter Loglogistic	4.92305		2.28626	1663.83360

LAMPIRAN E

Distribution Analysis: R 1

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2728.71	317.068	2107.27	3350.16
Standard Deviation	838.883	288.871	427.159	1647.46
Median	2728.71	317.068	2107.27	3350.16
First Quartile(Q1)	2162.90	372.149	1433.50	2892.29
Third Quartile(Q3)	3294.53	372.149	2565.13	4023.93
Interquartile Range(IQR)	1131.64	389.680	576.228	2222.38

Distribution Analysis: R 2

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	1585.33	132.958	1324.74	1845.93
Standard Deviation	460.579	110.816	287.411	738.083
Median	1585.33	132.958	1324.74	1845.93
First Quartile(Q1)	1274.68	152.527	975.730	1573.63
Third Quartile(Q3)	1895.99	152.527	1597.04	2194.94
Interquartile Range(IQR)	621.311	149.489	387.711	995.659

Distribution Analysis: R 3

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	1729.64	177.394	1381.95	2077.32
Standard Deviation	588.351	143.337	364.974	948.442
Median	1729.64	177.394	1381.95	2077.32
First Quartile(Q1)	1332.80	202.029	936.830	1728.77
Third Quartile(Q3)	2126.47	202.029	1730.50	2522.44
Interquartile Range(IQR)	793.673	193.359	492.343	1279.43

Distribution Analysis: R 4

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2387.25	109.924	2171.80	2602.70
Standard Deviation	310.912	97.8829	167.749	576.258
Median	2387.25	109.924	2171.80	2602.70
First Quartile(Q1)	2177.54	128.227	1926.22	2428.86
Third Quartile(Q3)	2596.96	128.227	2345.64	2848.28
Interquartile Range(IQR)	419.414	132.042	226.289	777.361

Distribution Analysis: R 5

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2251.5	277.990	1706.65	2796.35
Standard Deviation	680.934	245.326	336.074	1379.67
Median	2251.5	277.990	1706.65	2796.35
First Quartile(Q1)	1792.22	323.510	1158.15	2426.29
Third Quartile(Q3)	2710.78	323.510	2076.71	3344.85

Interquartile Range(IQR)	918.566	330.940	453.357	1861.15

Distribution Analysis: R 6

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2371.63	245.935	1889.60	2853.65
Standard Deviation	695.610	207.118	388.078	1246.84
Median	2371.63	245.935	1889.60	2853.65
First Quartile(Q1)	1902.44	282.843	1348.08	2456.80
Third Quartile(Q3)	2840.81	282.843	2286.45	3395.17
Interquartile Range(IQR)	938.363	279.398	523.510	1681.96

Distribution Analysis: R 7

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2371.5	281.262	1820.24	2922.76
Standard Deviation	795.529	259.173	420.094	1506.49
Median	2371.5	281.262	1820.24	2922.76
First Quartile(Q1)	1834.92	331.159	1185.86	2483.98
Third Quartile(Q3)	2908.08	331.159	2259.02	3557.14
Interquartile Range(IQR)	1073.15	349.618	566.698	2032.22

Distribution Analysis: R 8

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	3012.17	93.4493	2829.01	3195.32
Standard Deviation	228.903	83.8497	111.647	469.306
Median	3012.17	93.4493	2829.01	3195.32
First Quartile(Q1)	2857.77	109.231	2643.69	3071.86
Third Quartile(Q3)	3166.56	109.231	2952.47	3380.65
Interquartile Range(IQR)	308.786	113.112	150.610	633.084

Distribution Analysis: R 9

Characteristics of Distribution

	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2586.43	126.869	2337.77	2835.09
Standard Deviation	335.663	116.308	170.201	661.982
Median	2586.43	126.869	2337.77	2835.09
First Quartile(Q1)	2360.03	149.164	2067.67	2652.38
Third Quartile(Q3)	2812.83	149.164	2520.47	3105.19
Interquartile Range(IQR)	452.803	156.897	229.597	893.000

Distribution Analysis: R 10

Characteristics of Distribution

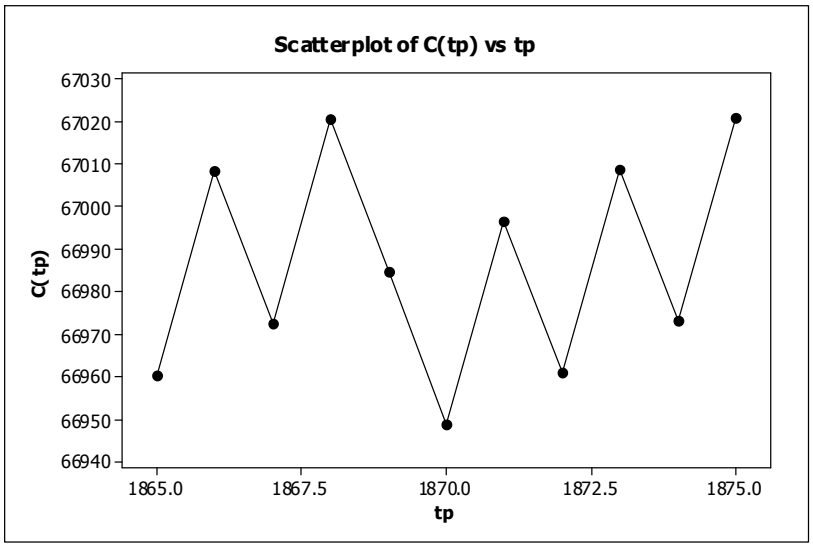
	Estimate	Standard Error	95.0% Normal CI Lower	Upper
Mean(MTTF)	2428.57	317.816	1805.66	3051.48
Standard Deviation	840.863	289.051	428.667	1649.42
Median	2428.57	317.816	1805.66	3051.48
First Quartile(Q1)	1861.42	372.851	1130.64	2592.19
Third Quartile(Q3)	2995.73	372.851	2264.95	3726.50
Interquartile Range(IQR)	1134.31	389.924	578.263	2225.03

LAMPIRAN F

1. Perhitungan waktu interval perawatan untuk reaktor kimia 1.

Tabel 1 Perhitungan interval waktu perawatan reaktor kimia 1

tp	Cp	Cf	H(tp)	C(tp)
1865	Rp106,560,000	Rp156,590,000	0.117	Rp66,960.34
1866	Rp106,560,000	Rp156,590,000	0.118	Rp67,008.37
1867	Rp106,560,000	Rp156,590,000	0.118	Rp66,972.48
1868	Rp106,560,000	Rp156,590,000	0.119	Rp67,020.46
1869	Rp106,560,000	Rp156,590,000	0.119	Rp66,984.60
1870	**Rp106,560,000**	**Rp156,590,000**	**0.119**	**Rp66,948.78**
1871	Rp106,560,000	Rp156,590,000	0.12	Rp66,996.69
1872	Rp106,560,000	Rp156,590,000	0.12	Rp66,960.90
1873	Rp106,560,000	Rp156,590,000	0.121	Rp67,008.75
1874	Rp106,560,000	Rp156,590,000	0.121	Rp66,972.99
1875	Rp106,560,000	Rp156,590,000	0.122	Rp67,020.79

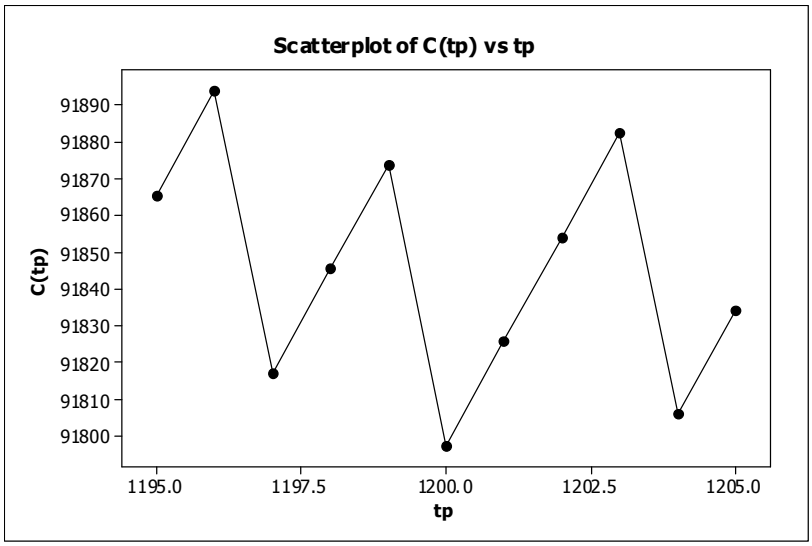


Gambar 1 Hubungan antara C(tp) dengan tp reaktor kimia 1

2. Perhitungan waktu interval perawatan untuk reaktor kimia 2.

Tabel 2 Perhitungan interval waktu perawatan reaktor kimia 2

tp	Cp	Cf	H(tp)	C(tp)
1195	Rp85,860,000	Rp125,890,000	0.19	Rp 91,865.36
1196	Rp85,860,000	Rp125,890,000	0.191	Rp 91,893.80
1197	Rp85,860,000	Rp125,890,000	0.191	Rp 91,817.03
1198	Rp85,860,000	Rp125,890,000	0.192	Rp 91,845.48
1199	Rp85,860,000	Rp125,890,000	0.193	Rp 91,873.87
1200	**Rp85,860,000**	**Rp125,890,000**	**0.193**	**Rp 91,797.31**
1201	Rp85,860,000	Rp125,890,000	0.194	Rp 91,825.70
1202	Rp85,860,000	Rp125,890,000	0.195	Rp 91,854.03
1203	Rp85,860,000	Rp125,890,000	0.196	Rp 91,882.33
1204	Rp85,860,000	Rp125,890,000	0.196	Rp 91,806.01
1205	Rp85,860,000	Rp125,890,000	0.197	Rp 91,834.30

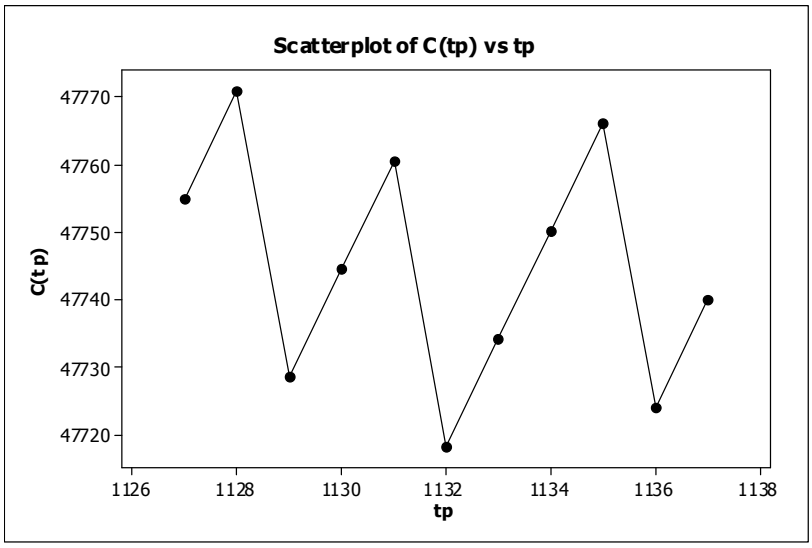


Gambar 2 Hubungan antara C(tp) dengan tp reaktor kimia 2

3. Perhitungan waktu interval perawatan untuk reaktor kimia 3.

Tabel 3 Perhitungan interval waktu perawatan reaktor kimia 3

tp	Cp	Cf	H(tp)	C(tp)
1127	Rp44,936,667	Rp65,800,000	0.135	Rp47,754.81
1128	Rp44,936,667	Rp65,800,000	0.136	Rp47,770.80
1129	Rp44,936,667	Rp65,800,000	0.136	Rp47,728.49
1130	Rp44,936,667	Rp65,800,000	0.137	Rp47,744.48
1131	Rp44,936,667	Rp65,800,000	0.138	Rp47,760.45
1132	**Rp44,936,667**	**Rp65,800,000**	**0.138**	**Rp47,718.26**
1133	Rp44,936,667	Rp65,800,000	0.139	Rp47,734.22
1134	Rp44,936,667	Rp65,800,000	0.14	Rp47,750.15
1135	Rp44,936,667	Rp65,800,000	0.141	Rp47,766.05
1136	Rp44,936,667	Rp65,800,000	0.141	Rp47,724.00
1137	Rp44,936,667	Rp65,800,000	0.142	Rp47,739.90

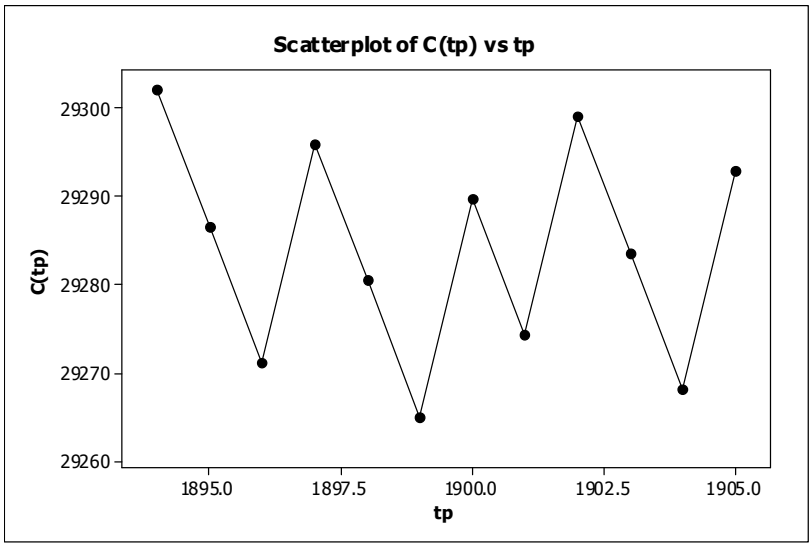


Gambar 4 Hubungan antara C(tp) dengan tp reaktor kimia 3

4. Perhitungan waktu interval perawatan untuk reaktor kimia 4.

Tabel 4 Perhitungan interval waktu perawatan reaktor kimia 4

tp	Cp	Cf	H(tp)	C(tp)
1894	Rp51,993,333	Rp76,190,000	0.046	29302.04505
1895	Rp51,993,333	Rp76,190,000	0.046	29286.58223
1896	Rp51,993,333	Rp76,190,000	0.046	29271.13572
1897	Rp51,993,333	Rp76,190,000	0.047	29295.86892
1898	Rp51,993,333	Rp76,190,000	0.047	29280.43379
1899	**Rp51,993,333**	**Rp76,190,000**	**0.047**	**29265.01492**
1900	Rp51,993,333	Rp76,190,000	0.048	29289.71228
1901	Rp51,993,333	Rp76,190,000	0.048	29274.30475
1902	Rp51,993,333	Rp76,190,000	0.049	29298.97126
1903	Rp51,993,333	Rp76,190,000	0.049	29283.57506
1904	Rp51,993,333	Rp76,190,000	0.049	29268.19503

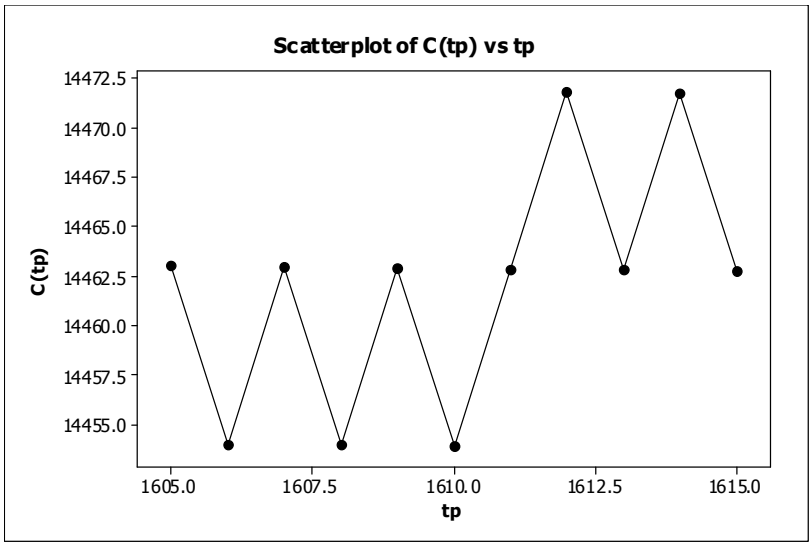


Gambar 4 Hubungan antara C(tp) dengan tp reaktor kimia 4

5. Perhitungan waktu interval perawatan untuk reaktor kimia 6.

Tabel 5 Perhitungan interval waktu perawatan reaktor kimia 6

tp	Cp	Cf	H(tp)	C(tp)
1605	Rp19,810,000	Rp28,840,000	0.118	Rp14,463.00
1606	Rp19,810,000	Rp28,840,000	0.118	Rp14,454.00
1607	Rp19,810,000	Rp28,840,000	0.119	Rp14,462.95
1608	Rp19,810,000	Rp28,840,000	0.119	Rp14,453.96
1609	Rp19,810,000	Rp28,840,000	0.12	Rp14,462.90
1610	**Rp19,810,000**	**Rp28,840,000**	**0.12**	**Rp14,453.91**
1611	Rp19,810,000	Rp28,840,000	0.121	Rp14,462.84
1612	Rp19,810,000	Rp28,840,000	0.122	Rp14,471.76
1613	Rp19,810,000	Rp28,840,000	0.122	Rp14,462.79
1614	Rp19,810,000	Rp28,840,000	0.123	Rp14,471.70
1615	Rp19,810,000	Rp28,840,000	0.123	Rp14,462.74

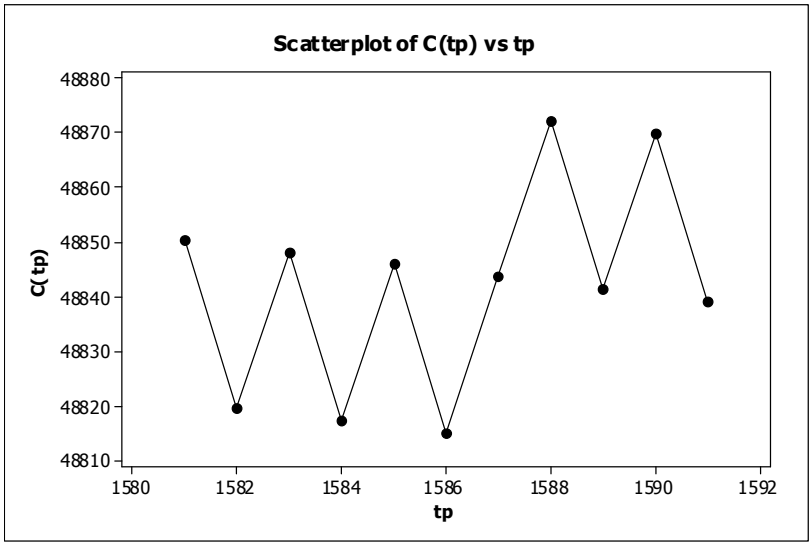


Gambar 5 Hubungan antara C(tp) dengan tp reaktor kimia 6

6. Perhitungan waktu interval perawatan untuk reaktor kimia 7.

Tabel 6 Perhitungan interval waktu perawatan reaktor kimia 7

tp	Cp	Cf	H(tp)	C(tp)
1581	Rp64,060,000	Rp94,090,000	0.14	Rp48,850.47
1582	Rp64,060,000	Rp94,090,000	0.14	Rp48,819.60
1583	Rp64,060,000	Rp94,090,000	0.141	Rp48,848.19
1584	Rp64,060,000	Rp94,090,000	0.141	Rp48,817.35
1585	Rp64,060,000	Rp94,090,000	0.142	Rp48,845.92
1586	**Rp64,060,000**	**Rp94,090,000**	**0.142**	**Rp48,815.12**
1587	Rp64,060,000	Rp94,090,000	0.143	Rp48,843.65
1588	Rp64,060,000	Rp94,090,000	0.144	Rp48,872.14
1589	Rp64,060,000	Rp94,090,000	0.144	Rp48,841.38
1590	Rp64,060,000	Rp94,090,000	0.145	Rp48,869.84
1591	Rp64,060,000	Rp94,090,000	0.145	Rp48,839.13

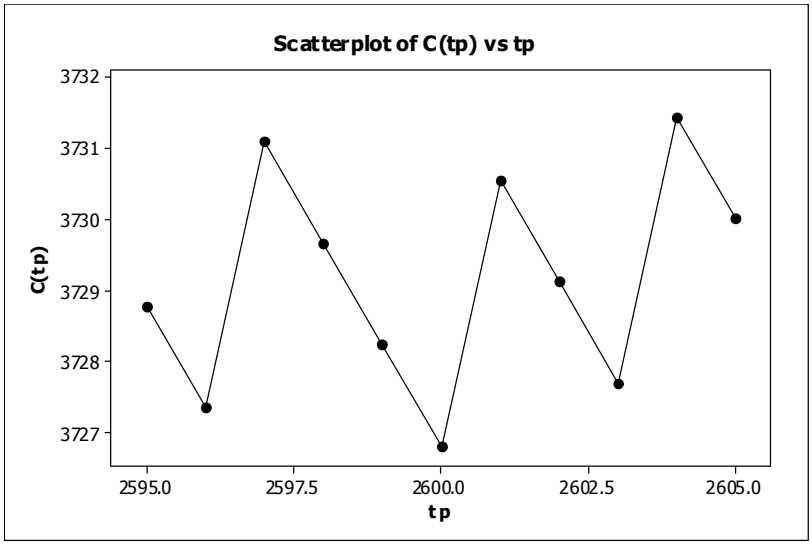


Gambar 6 Hubungan antara C(tp) dengan tp reaktor kimia 7

7. Perhitungan waktu interval perawatan untuk reaktor kimia 8.

Tabel 8 Perhitungan interval waktu perawatan reaktor kimia 8

tp	Cp	Cf	H(tp)	C(tp)
2595	Rp9,298,333	Rp13,495,000	0.028	Rp3,728.78
2596	Rp9,298,333	Rp13,495,000	0.028	Rp3,727.35
2597	Rp9,298,333	Rp13,495,000	0.029	Rp3,731.11
2598	Rp9,298,333	Rp13,495,000	0.029	Rp3,729.67
2599	Rp9,298,333	Rp13,495,000	0.029	Rp3,728.24
2600	**Rp9,298,333**	**Rp13,495,000**	**0.029**	**Rp3,726.80**
2601	Rp9,298,333	Rp13,495,000	0.03	Rp3,730.56
2602	Rp9,298,333	Rp13,495,000	0.03	Rp3,729.13
2603	Rp9,298,333	Rp13,495,000	0.03	Rp3,727.69
2604	Rp9,298,333	Rp13,495,000	0.031	Rp3,731.44
2605	Rp9,298,333	Rp13,495,000	0.031	Rp3,730.01

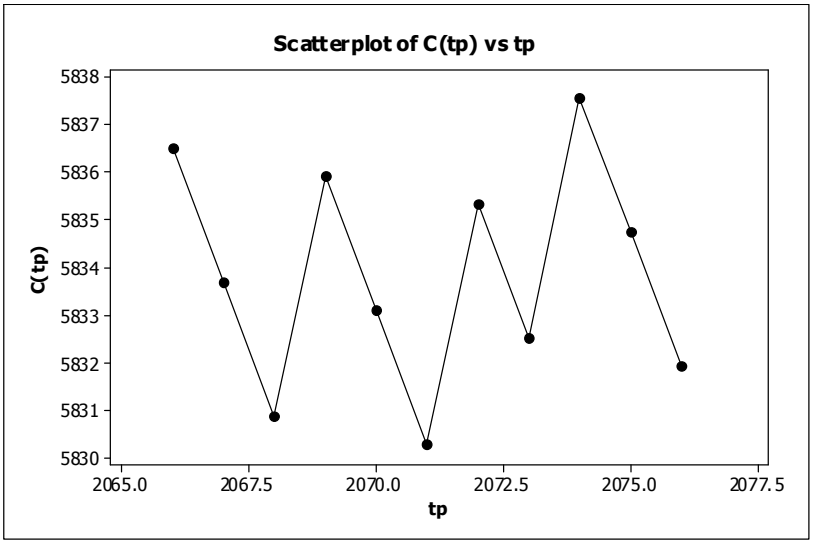


Gambar 8 Hubungan antara C(tp) dengan tp reaktor kimia 8

8. Perhitungan waktu interval perawatan untuk reaktor kimia 9.

Tabel 8 Perhitungan interval waktu perawatan reaktor kimia 9

tp	Cp	Cf	H(tp)	C(tp)
2066	Rp11,260,000	Rp16,290,000	0.049	Rp5,836.50
2067	Rp11,260,000	Rp16,290,000	0.049	Rp5,833.68
2068	Rp11,260,000	Rp16,290,000	0.049	Rp5,830.86
2069	Rp11,260,000	Rp16,290,000	0.05	Rp5,835.91
2070	Rp11,260,000	Rp16,290,000	0.05	Rp5,833.09
2071	**Rp11,260,000**	**Rp16,290,000**	**0.05**	**Rp5,830.28**
2072	Rp11,260,000	Rp16,290,000	0.051	Rp5,835.32
2073	Rp11,260,000	Rp16,290,000	0.051	Rp5,832.51
2074	Rp11,260,000	Rp16,290,000	0.052	Rp5,837.55
2075	Rp11,260,000	Rp16,290,000	0.052	Rp5,834.74
2076	Rp11,260,000	Rp16,290,000	0.052	Rp5,831.93

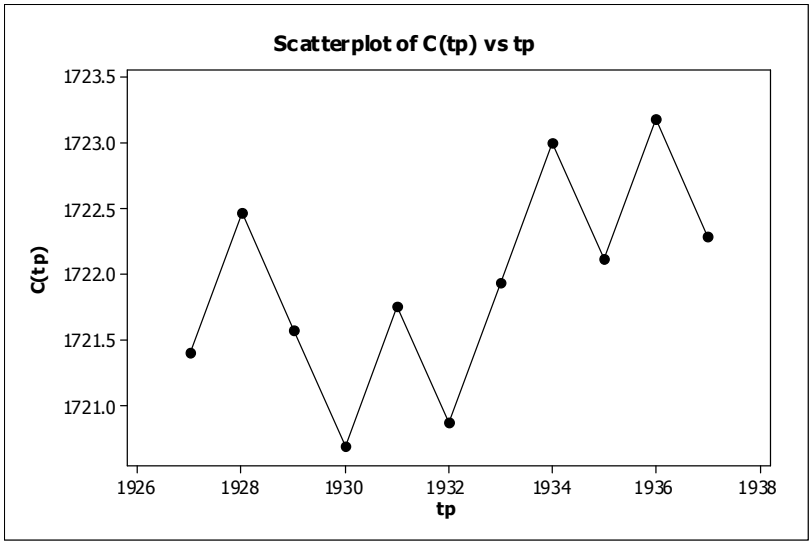


Gambar 8 Hubungan antara C(tp) dengan tp reaktor kimia 9

9. Perhitungan waktu interval perawatan untuk reaktor kimia 10.

Tabel 9 Perhitungan interval waktu perawatan reaktor kimia 10

tp	Cp	Cf	H(tp)	C(tp)
1927	Rp2,760,000	Rp3,790,000	0.147	Rp1,721.40
1928	Rp2,760,000	Rp3,790,000	0.148	Rp1,722.47
1929	Rp2,760,000	Rp3,790,000	0.148	Rp1,721.58
1930	Rp2,760,000	Rp3,790,000	0.148	Rp1,720.68
1931	Rp2,760,000	Rp3,790,000	0.149	Rp1,721.76
1932	**Rp2,760,000**	**Rp3,790,000**	**0.149**	**Rp1,720.86**
1933	Rp2,760,000	Rp3,790,000	0.15	Rp1,721.93
1934	Rp2,760,000	Rp3,790,000	0.151	Rp1,723.00
1935	Rp2,760,000	Rp3,790,000	0.151	Rp1,722.11
1936	Rp2,760,000	Rp3,790,000	0.152	Rp1,723.18
1937	Rp2,760,000	Rp3,790,000	0.152	Rp1,722.29



Gambar 9 Hubungan antara C(tp) dengan tp reaktor kimia 10

LAMPIRAN G

Listing Barang

```
unit Barang;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, Grids, DBGrids, SUIDBCtrls, StdCtrls, SUIEdit, SUIButton,
  SUIImagePanel, SUIMgr, ExtCtrls, SUIForm, DB, ADODB, ExtDlgs,
  SUIGroupBox, SUIRadioGroup;

type
  TFormBarang = class(TForm)
    suiForm1: TsuiForm;
    suiThemeManager1: TsuiThemeManager;
    suiPanel1: TsuiPanel;
    suiPanel2: TsuiPanel;
    suiPanel3: TsuiPanel;
    BtRUbah: TsuiButton;
    BtBersih: TsuiButton;
    BtHapus: TsuiButton;
    Label1: TLabel;
    EdKode: TsuiEdit;
    Label2: TLabel;
    EdWarna: TsuiEdit;
    Label3: TLabel;
    EdProduksi: TsuiEdit;
    suiDBGrid1: TsuiDBGrid;
    Label4: TLabel;
    EdPenalty: TsuiEdit;
    BtTambah: TsuiButton;
    BtKeluar: TsuiButton;
    Label6: TLabel;
    EdFilter: TsuiEdit;
    DataSource1: TDataSource;
    ADOQuery1: TADOQuery;
    Label11: TLabel;
    suiCheckGroup1: TsuiCheckGroup;
    Label5: TLabel;
    procedure FormShow(Sender: TObject);
    procedure BtTambahClick(Sender: TObject);
    procedure BtKeluarClick(Sender: TObject);
```

```
    procedure BtHapusClick(Sender: TObject);
    procedure BtRUbahClick(Sender: TObject);
    procedure EdFilterChange(Sender: TObject);
    procedure BtBersihClick(Sender: TObject);
    procedure suiDBGrid1DblClick(Sender: TObject);
    procedure EdWarnaExit(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
    procedure EdWarnaEnter(Sender: TObject);
    procedure EdProduksiEnter(Sender: TObject);
    procedure EdPenaltyEnter(Sender: TObject);
    procedure EdFilterEnter(Sender: TObject);
    procedure EdProduksiExit(Sender: TObject);
    procedure EdPenaltyExit(Sender: TObject);
    procedure EdFilterExit(Sender: TObject);
    procedure EdProduksiKeyPress(Sender: TObject; var Key: Char);
    procedure EdPenaltyKeyPress(Sender: TObject; var Key: Char);
    procedure EdKodeEnter(Sender: TObject);
    procedure EdKodeExit(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  FormBarang: TFormBarang;

implementation

uses Menu, Math, datamodule;

{$R *.dfm}

procedure TFormBarang.FormShow(Sender: TObject);
begin
btBersih.Click;
Datamodule1.ADOTable1.Close;
Datamodule1.ADOTable1.Open;
end;

procedure TFormBarang.BtTambahClick(Sender: TObject);
var i:integer;
begin
Datamodule1.ADOTable1.Append;
Datamodule1.ADOTable1.FieldByName('kode').AsString:=EdKode.Text;
Datamodule1.ADOTable1.FieldByName('Warna').AsString:=EdWarna.Text;
Datamodule1.ADOTable1.FieldByName('Produksi').AsString:=EdProduksi.Text;
```

```
Datamodule1.ADOTable1.FieldByName('Penalty').AsString:=EdPenalty.Text;
for i:=0 to 9 do
  begin
  if suicheckgroup1.Checked[i]=true then
    Datamodule1.ADOTable1.FieldByName('R'+inttostr(i+1)).AsString:='1'
  else
    Datamodule1.ADOTable1.FieldByName('R'+inttostr(i+1)).AsString:='0';
  end;
Datamodule1.ADOTable1.Post;
btBersih.Click;
end;

procedure TFormBarang.BtKeluarClick(Sender: TObject);
begin
close;
end;

procedure TFormBarang.BtHapusClick(Sender: TObject);
begin
if Datamodule1.ADOTable1.Locate('kode',EdKode.Text,[locaseinsensitive]) then
begin
Datamodule1.ADOTable1.Delete;
btBersih.Click;
end;
end;

procedure TFormBarang.BtRUbahClick(Sender: TObject);
var i:integer;
begin
if Datamodule1.ADOTable1.Locate('kode',EdKode.Text,[locaseinsensitive]) then
begin
Datamodule1.ADOTable1.Edit;
Datamodule1.ADOTable1.FieldByName('kode').AsString:=EdKode.Text;
Datamodule1.ADOTable1.FieldByName('Warna').AsString:=EdWarna.Text;
Datamodule1.ADOTable1.FieldByName('Produksi').AsString:=EdProduksi.Text;
Datamodule1.ADOTable1.FieldByName('Penalty').AsString:=EdPenalty.Text;
for i:=0 to 9 do
  begin
  if suicheckgroup1.Checked[i]=true then
    Datamodule1.ADOTable1.FieldByName('R'+inttostr(i+1)).AsString:='1'
  else
    Datamodule1.ADOTable1.FieldByName('R'+inttostr(i+1)).AsString:='0';
  end;
Datamodule1.ADOTable1.Post;
btBersih.Click;
end;
end;
```

```
procedure TFormBarang.EdFilterChange(Sender: TObject);
begin
adoquery1.Close;
adoquery1.SQL.Text:='select * from barang where kode like
'+quotedstr(edFilter.Text+'%');
adoquery1.Open;
end;

procedure TFormBarang.BtBersihClick(Sender: TObject);
var i:integer;
begin
EdKode.Clear;EdWarna.Clear;
EdProduksi.text:='0';EdPenalty.text:='0';
edFilter.Clear;
for i:=0 to 9 do
  suicheckgroup1.Checked[i]:=false;
Datamodule1.ADOTable1.Filtered:=false;
adoquery1.Close;
ADOQuery1.SQL.Text:='select * from barang';
adoquery1.open;
//image1.Canvas.Rectangle(0,0,image1.Width,image1.Height);
btTambah.Enabled:=true;btRubah.Enabled:=false;
btHapus.Enabled:=false;
end;

procedure TFormBarang.suiDBGrid1DblClick(Sender: TObject);
var i:integer;
begin
begin
EdKode.Text:=ADOQuery1.FieldByName('kode').AsString;
EdWarna.Text:=ADOQuery1.FieldByName('Warna').AsString;
EdProduksi.Text:=floattostr(RoundTo(ADOQuery1.FieldByName('Produksi').AsFloat,-
2));
EdPenalty.Text:=floattostr(RoundTo(ADOQuery1.FieldByName('Penalty').AsFloat,-2));
for i:=0 to 9 do
  begin
  if ADOQuery1.FieldByName('R'+inttostr(i+1)).AsString='1' then
    suicheckgroup1.Checked[i]:=true
  else
    suicheckgroup1.Checked[i]:=false;
  end;
btTambah.Enabled:=false;
btRubah.Enabled:=true;
btHapus.Enabled:=true;
end;

procedure TFormBarang.EdWarnaExit(Sender: TObject);
```

```
begin
EdWarna.Color:=clWindow;
end;

procedure TFormBarang.FormClose(Sender: TObject; var Action: TCloseAction);
begin
FormMenu.show;
end;

procedure TFormBarang.EdWarnaEnter(Sender: TObject);
begin
EdWarna.Color:=clYellow;
end;

procedure TFormBarang.EdProduksiEnter(Sender: TObject);
begin
EdProduksi.Color:=clYellow;
end;

procedure TFormBarang.EdPenaltyEnter(Sender: TObject);
begin
EdPenalty.Color:=clYellow;
end;

procedure TFormBarang.EdFilterEnter(Sender: TObject);
begin
EdFilter.Color:=clYellow;
end;

procedure TFormBarang.EdProduksiExit(Sender: TObject);
begin
EdProduksi.Color:=clWindow;
end;

procedure TFormBarang.EdPenaltyExit(Sender: TObject);
begin
EdPenalty.Color:=clWindow;
end;

procedure TFormBarang.EdFilterExit(Sender: TObject);
begin
EdFilter.Color:=clWindow;
end;

procedure TFormBarang.EdProduksiKeyPress(Sender: TObject; var Key: Char);
begin
if not(key in['0'..'9','.',#8])then key:=#0;
```

```
end;

procedure TFormBarang.EdPenaltyKeyPress(Sender: TObject; var Key: Char);
begin
if not(key in['0'..'9','.',#8])then key:=#0;
end;

procedure TFormBarang.EdKodeEnter(Sender: TObject);
begin
EdKode.Color:=clYellow;
end;

procedure TFormBarang.EdKodeExit(Sender: TObject);
var i:integer;
begin
if (EdKode.Text<>'')and(btTambah.Enabled) then
  begin
  if Datamodule1.ADOTable1.Locate('kode',edKode.Text,[locaseinsensitive]) then
    begin
    EdKode.Text:=Datamodule1.ADOTable1.FieldByName('kode').AsString;
    EdWarna.Text:=Datamodule1.ADOTable1.FieldByName('Warna').AsString;

EdProduksi.Text:=floattostr(RoundTo(Datamodule1.ADOTable1.FieldByName('Produks
i').AsFloat,-2));

EdPenalty.Text:=floattostr(RoundTo(Datamodule1.ADOTable1.FieldByName('Penalty').
AsFloat,-2));
    for i:=0 to 9 do
    begin
    if Datamodule1.ADOTable1.FieldByName('R'+inttostr(i+1)).AsString='1' then
      suicheckgroup1.Checked[i]:=true
    else
      suicheckgroup1.Checked[i]:=false;
    end;
    btTambah.Enabled:=false;
    btRubah.Enabled:=true;
    btHapus.Enabled:=true;
    end;
  end;
EdKode.Color:=clWhite;
end;

end.
```

Listing Cari Barang

```
unit CariBarang;
```

```
interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, SUIButton, ExtDlgs, DB, ADODB, SUIMgr, Grids, DBGrids, StdCtrls,
  SUIEdit, SUIImagePanel, ExtCtrls, SUIForm, SUIDBCtrls;

type
  TFormCariBarang = class(TForm)
    suiFormCariBarang: TsuiForm;
    suiPanel3: TsuiPanel;
    Label17: TLabel;
    edFilter: TsuiEdit;
    suiThemeManager1: TsuiThemeManager;
    DataSource1: TDataSource;
    suiDBGrid1: TsuiDBGrid;
    btKeluar: TsuiButton;
    ADOQuery1: TADOQuery;
    procedure btKeluarClick(Sender: TObject);
    procedure edFilterChange(Sender: TObject);
    procedure suiDBGrid1DblClick(Sender: TObject);
    procedure FormShow(Sender: TObject);
    procedure edFilterEnter(Sender: TObject);
    procedure edFilterExit(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
    MODE:INTEGER;
  end;

var
  FormCariBarang: TFormCariBarang;

implementation

uses datamodule, Job;

{$R *.dfm}

procedure TFormCariBarang.btKeluarClick(Sender: TObject);
begin
CLOSE;
end;

procedure TFormCariBarang.edFilterChange(Sender: TObject);
begin
```

```
ADOQuery1.Close;
adoquery1.SQL.Text:='select * from barang where kode like
'+quotedstr(edFilter.Text+'%');
ADOQuery1.Open;
end;

procedure TFormCariBarang.suiDBGrid1DblClick(Sender: TObject);
var i:integer;
   s:string;
begin
FormJob.edkode.text:=ADOQuery1.FieldByName('kode').AsString;
close;
end;

procedure TFormCariBarang.FormShow(Sender: TObject);
begin
edFilter.Clear;
ADOQuery1.Close;
adoquery1.SQL.Text:='select * from barang where kode like
'+quotedstr(edFilter.Text+'%');
ADOQuery1.Open;
end;

procedure TFormCariBarang.edFilterEnter(Sender: TObject);
begin
EdFilter.Color:=clYellow;
end;

procedure TFormCariBarang.edFilterExit(Sender: TObject);
begin
EdFilter.Color:=clWindow;
end;

end.
```

Listing Menu

```
unit Menu;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, SUIMgr, ExtCtrls, SUIForm, Menus, SUIMainMenu;

type
  TFormMenu = class(TForm)
    suiForm1: TsuiForm;
```

```
    suiThemeManager1: TsuiThemeManager;
    suiMainMenu1: TsuiMainMenu;
    Other1: TMenuItem;
    About1: TMenuItem;
    Exit1: TMenuItem;
    Master1: TMenuItem;
    DataProduct1: TMenuItem;
    ransaksi1: TMenuItem;
    Laporan1: TMenuItem;
    InsertJob1: TMenuItem;
    Schedule1: TMenuItem;
    LaporanProduksi1: TMenuItem;
    procedure DataProduct1Click(Sender: TObject);
    procedure InsertJob1Click(Sender: TObject);
    procedure Schedule1Click(Sender: TObject);
    procedure Exit1Click(Sender: TObject);
    procedure LaporanProduksi1Click(Sender: TObject);
    procedure FormShow(Sender: TObject);
    procedure About1Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  FormMenu: TFormMenu;

implementation
uses datamodule, Barang, Job, Jadwal, LapProduksi, About;
{$R *.dfm}

procedure TFormMenu.DataProduct1Click(Sender: TObject);
begin
FormBarang.showmodal;
end;

procedure TFormMenu.InsertJob1Click(Sender: TObject);
begin
FormJob.showmodal;
end;

procedure TFormMenu.Schedule1Click(Sender: TObject);
begin
FormJadwal.showmodal;
end;
```

```
procedure TFormMenu.Exit1Click(Sender: TObject);
begin
close;
end;

procedure TFormMenu.LaporanProduksi1Click(Sender: TObject);
begin
FormLapProduksi.showmodal;
end;

procedure TFormMenu.FormShow(Sender: TObject);
begin
//showmessage();
end;

procedure TFormMenu.About1Click(Sender: TObject);
begin
FormAbout.showmodal;
end;

end.
```

Listing Job

```
unit Job;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, SUIMgr, ExtCtrls, SUIForm, ComCtrls, StdCtrls, SUIEdit,
  SUIButton, SUIImagePanel, DB, ADODB, Grids, DBGrids, SUIDBCtrls;

type
  TFormJob = class(TForm)
    suiForm1: TsuiForm;
    suiThemeManager1: TsuiThemeManager;
    suiPanel2: TsuiPanel;
    BtRUbah: TsuiButton;
    BtBersih: TsuiButton;
    BtHapus: TsuiButton;
    BtTambah: TsuiButton;
    BtKeluar: TsuiButton;
    suiPanel1: TsuiPanel;
    Label2: TLabel;
    EdOrder: TsuiEdit;
    Label1: TLabel;
    EdKode: TsuiEdit;
```

```
    Label3: TLabel;
    EdPermintaan: TsuiEdit;
    Label5: TLabel;
    DateTimePicker1: TDateTimePicker;
    Label4: TLabel;
    BtKode: TsuiButton;
    ADOQuery1: TADOQuery;
    suiPanel3: TsuiPanel;
    Label6: TLabel;
    suiDBGrid1: TsuiDBGrid;
    EdFilter: TsuiEdit;
    DataSource1: TDataSource;
    DateTimePicker2: TDateTimePicker;
    procedure BtKodeClick(Sender: TObject);
    procedure BtBersihClick(Sender: TObject);
    procedure BtTambahClick(Sender: TObject);
    procedure suiDBGrid1DblClick(Sender: TObject);
    procedure BtRUbahClick(Sender: TObject);
    procedure BtHapusClick(Sender: TObject);
    procedure EdFilterChange(Sender: TObject);
    procedure BtKeluarClick(Sender: TObject);
    procedure FormShow(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  FormJob: TFormJob;

implementation
uses datamodule, CariBarang;
{$R *.dfm}

procedure TFormJob.BtKodeClick(Sender: TObject);
begin
formcaribarang.showmodal;
end;

procedure TFormJob.BtBersihClick(Sender: TObject);
var ctr:integer;
    s,temp:string;
begin
datetimepicker1.DateTime:=now;
edpermintaan.Text:='0';
edkode.Text:='';edfilter.Clear;
```

```
ctr:=1;
s:=formatdatetime('ddmmyy',date);
adoquery1.Close;
adoquery1.Sql.Text:='select orderid from job where left(orderid,6)='+quotedstr(s)+' order
by orderid desc';
adoquery1.Open;
while not adoquery1.Eof do
  begin
  temp:= adoquery1.FieldByName('orderid').AsString;
  if strtoint(copy(temp,7,2))>=ctr then
    ctr:=strtoint(copy(temp,7,2))+1;
  adoquery1.Next;
  end;
edorder.Text:=s+copy('0'+inttostr(ctr),length(inttostr(ctr)),2);
adoquery1.Close;
adoquery1.SQL.Text:='select * from job where orderid not in(select orderid from
jobdetail)';
adoquery1.Open;
btTambah.Enabled:=true;
btRubah.Enabled:=false;
btHapus.Enabled:=false;
btkode.SetFocus;
end;

procedure TFormJob.BtTambahClick(Sender: TObject);
begin
if (edkode.Text<>'')and(edpermintaan.Text<>'') then
  begin
  datamodule1.ADOTableJob.Append;
  datamodule1.ADOTableJob.FieldByName('orderid').AsString:=edorder.Text;
  datamodule1.ADOTableJob.FieldByName('kode').AsString:=edkode.Text;
  datamodule1.ADOTableJob.FieldByName('permintaan').AsString:=edpermintaan.Text;

datamodule1.ADOTableJob.FieldByName('tglduedate').AsDateTime:=strtodatetime(datet
ostr(datetimepicker1.Date)+' '+timetostr(datetimepicker2.Time));
  datamodule1.ADOTableJob.Post;
  btbersih.Click;
  end
else
  showmessage('harap isi semua inputan');
end;

procedure TFormJob.suiDBGrid1DblClick(Sender: TObject);
begin
EdKode.Text:=ADOQuery1.FieldByName('kode').AsString;
Edorder.Text:=ADOQuery1.FieldByName('orderid').AsString;
Edpermintaan.Text:=ADOQuery1.FieldByName('permintaan').AsString;
```

```
datetimepicker1.Date:=ADOQuery1.FieldByName('tglduedate').Asdatetime;
datetimepicker2.time:=ADOQuery1.FieldByName('tglduedate').Asdatetime;
btTambah.Enabled:=false;
btRubah.Enabled:=true;
btHapus.Enabled:=true;
end;

procedure TFormJob.BtRUbahClick(Sender: TObject);
begin
if datamodule1.ADOTableJob.Locate('orderid',edorder.Text,[locaseinsensitive]) then
  begin
  datamodule1.ADOTableJob.edit;
  datamodule1.ADOTableJob.FieldByName('kode').AsString:=edkode.Text;
  datamodule1.ADOTableJob.FieldByName('permintaan').AsString:=edpermintaan.Text;

datamodule1.ADOTableJob.FieldByName('tglduedate').AsDateTime:=strtodatetime(datet
ostr(datetimepicker1.Date)+' '+timetostr(datetimepicker2.Time));
  datamodule1.ADOTableJob.Post;
  btbersih.Click;
  end;
end;

procedure TFormJob.BtHapusClick(Sender: TObject);
begin
if datamodule1.ADOTableJob.Locate('orderid',edorder.Text,[locaseinsensitive]) then
  begin
  datamodule1.ADOTableJob.delete;
  btbersih.Click;
  end;
end;

procedure TFormJob.EdFilterChange(Sender: TObject);
begin
adoquery1.Close;
adoquery1.SQL.Text:='select * from job where orderid not in(select orderid from
jobdetail) and kode like '+quotedstr(edfilter.Text+'%');
adoquery1.Open;
end;

procedure TFormJob.BtKeluarClick(Sender: TObject);
begin
close;
end;

procedure TFormJob.FormShow(Sender: TObject);
begin
btbersih.Click;
```

```
end;

end.
```

Listing Jadwal

```
unit Jadwal;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, SUIMgr, Grids, DBGrids, SUIDBCtrls, ComCtrls, StdCtrls, SUIEdit,
  SUIButton, SUIImagePanel, ExtCtrls, SUIForm, DB, ADODB, SUIGrid, SUIMemo;

type
  TData=record
    orderid,kode:string;
    duedate,cr,penalty,weighted,overdue:extended;
    permintaan:longint;
    jum,wp:integer;
    tglduedate:tdatetime;
    reaktor,idxreaktor,produksi,lebih:array[1..10]of Longint;
    tglmulai,tglselesai:array[1..10]of tdatetime;
  end;
  TReaktor=record
    jum,jam:integer;
    idx1,idx2,idxdata:array[1..50]of integer;
    maintenance:boolean;
    tglmulai,tglselesai:tdatetime;
  end;
  TFormJadwal = class(TForm)
    suiForm1: TsuiForm;
    suiPanel2: TsuiPanel;
    BtChart: TsuiButton;
    BtSubmit: TsuiButton;
    BtProses: TsuiButton;
    BtKeluar: TsuiButton;
    suiPanel1: TsuiPanel;
    suiPanel3: TsuiPanel;
    suiThemeManager1: TsuiThemeManager;
    suiStringGrid1: TsuiStringGrid;
    ADOQuery1: TADOQuery;
    suiMemo1: TsuiMemo;
    procedure FormShow(Sender: TObject);
    procedure BtKeluarClick(Sender: TObject);
    procedure BtProsesClick(Sender: TObject);
    procedure BtChartClick(Sender: TObject);
```

```
    procedure BtSubmitClick(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
    data:array[1..4,1..100] of tdata;
    jdreaktor:array[1..10] of treaktor;
    jum:array[1..4] of integer;
    dateakhir:array[1..10]of tdatetime;
  end;

var
  FormJadwal: TFormJadwal;
  kap,maintenance:array[1..10] of longint;
  datemulai,jammulai:array[1..10] of integer;

implementation
uses datamodule, DateUtils, math, Chart;
{$R *.dfm}

procedure TFormJadwal.FormShow(Sender: TObject);
var i,j,k:integer;
    ada:boolean;
begin
btproses.Enabled:=true;
btchart.Enabled:=false;
btsubmit.Enabled:=false;
suimemo1.Clear;
datamodule1.ADOTableReaktor.First;
for i:=1 to 10 do
  begin
  kap[i]:=datamodule1.ADOTableReaktor.fieldbyname('kapasitas').AsInteger;

maintenance[i]:=datamodule1.ADOTableReaktor.fieldbyname('maintenance').AsInteger;
  jdreaktor[i].jum:=0;
  jdreaktor[i].jam:=datamodule1.ADOTableReaktor.fieldbyname('pakai').AsInteger;
  jdreaktor[i].maintenance:=false;
  datamodule1.ADOTableReaktor.next;
  end;
suistringgrid1.Cells[0,0]:='Order Id';
suistringgrid1.Cells[1,0]:='Kode';
suistringgrid1.Cells[2,0]:='Due Date(jam)';
suistringgrid1.Cells[3,0]:='WP(jam)';
suistringgrid1.Cells[4,0]:='Permintaan(kg)';
suistringgrid1.Cells[5,0]:='Tardiness';
suistringgrid1.Cells[6,0]:='Tardiness Cost';
suistringgrid1.Cells[7,0]:='St';
```

```
//suistringgrid1.Cells[8,0]:='ST';
suistringgrid1.RowCount:=2;
for i:=1 to 4 do
  jum[i]:=0;
for i:=1 to 10 do
  begin
  datemulai[i]:=0;
  dateakhir[i]:=now;
  adoquery1.Close;
  adoquery1.SQL.Text:='select orderid,tglmulai,tglselesai as akhir from jobdetail where
reaktor='+inttostr(i)+' and tglselesai>=now()';
  adoquery1.Open;
  while not adoquery1.Eof do
  begin
  if
((HoursBetween(now,adoquery1.fieldbyname('tglmulai').Asdatetime)<=1)or(adoquery1.f
ieldbyname('orderid').AsString='MAINTENANCE'))and
(adoquery1.FieldByName('akhir').AsDateTime>dateakhir[i]) then
    begin
    dateakhir[i]:=adoquery1.FieldByName('akhir').AsDateTime;
    end;
  adoquery1.Next;
  end;
  datemulai[i]:=round(strtodate(datetostr(dateakhir[i]))-strtodate(datetostr(now)));
  jammulai[i]:=HourOf(dateakhir[i])+1;
  if jammulai[i]+datemulai[i]*24>HourOf(now)+1 then
    dec(jammulai[i]);
  if jammulai[i]>=24 then
    dec(jammulai[i],24);
  //showmessage(inttostr(datemulai[i]));
  end;
adoquery1.Close;
adoquery1.SQL.Text:='select j.*,d.produksi,d.tglmulai,d.tglselesai,d.reaktor,b.produksi as
wp,b.penalty,b.R1,b.R2,b.R3,b.R4,b.R5,b.R6,b.R7,b.R8,b.R9,b.R10 from job j,jobdetail
d,barang b where j.orderid=d.orderid and j.kode=b.kode and d.tglmulai>now()';
adoquery1.Open;
while not adoquery1.Eof do
  begin
  if
(HoursBetween(now,adoquery1.fieldbyname('tglmulai').Asdatetime)>1)and(adoquery1.fi
eldbyname('tglmulai').Asdatetime>=dateakhir[adoquery1.fieldbyname('reaktor').AsIntege
r]) then
  begin
  ada:=false;
  //showmessage(adoquery1.fieldbyname('orderid').AsString);
  for i:=1 to suistringgrid1.RowCount-2 do
    if adoquery1.fieldbyname('orderid').AsString=suistringgrid1.Cells[0,i] then
```

```
      begin
      ada:=true;

suistringgrid1.Cells[4,i]:=inttostr(strtoint(suistringgrid1.Cells[4,i])+adoquery1.fieldbyna
me('produksi').AsInteger);

suistringgrid1.Cells[6,i]:=floattostr(strtofloat(suistringgrid1.Cells[4,i])*strtofloat(suistrin
ggrid1.Cells[5,i]));
      if adoquery1.fieldbyname('R3').AsString='1' then j:=2
      else if adoquery1.fieldbyname('R7').AsString='1' then j:=3
      else if adoquery1.fieldbyname('R8').AsString='1' then j:=4
      else j:=1;
      for k:=1 to jum[j] do
        if data[j][k].orderid=adoquery1.fieldbyname('orderid').AsString then
          begin
          data[j][k].permintaan:=strtoint(suistringgrid1.Cells[4,i]);
          end;
      end;
  if ada=false then
  begin
  suistringgrid1.Cells[0,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('orderid').AsString;
  suistringgrid1.Cells[1,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('kode').AsString;
  if now<adoquery1.fieldbyname('tglduedate').Asdatetime then
    suistringgrid1.Cells[2,suistringgrid1.RowCount-
1]:=floattostr(HoursBetween(now,adoquery1.fieldbyname('tglduedate').Asdatetime))
  else
    suistringgrid1.Cells[2,suistringgrid1.RowCount-1]:='-
'+floattostr(HoursBetween(now,adoquery1.fieldbyname('tglduedate').Asdatetime));
  suistringgrid1.Cells[3,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('wp').AsString;
  suistringgrid1.Cells[4,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('produksi').AsString;
  suistringgrid1.Cells[5,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('penalty').AsString;
  suistringgrid1.Cells[6,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[4,suistringgrid1.RowCount-
1])*strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]));
  suistringgrid1.Cells[7,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1])-
strtofloat(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]));
  //suistringgrid1.Cells[8,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1])-
strtofloat(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]));

  if adoquery1.fieldbyname('R3').AsString='1' then i:=2
```

```
  else if adoquery1.fieldbyname('R7').AsString='1' then i:=3
  else if adoquery1.fieldbyname('R8').AsString='1' then i:=4
  else i:=1;
  inc(jum[i]);
  data[i][jum[i]].orderid:=suistringgrid1.Cells[0,suistringgrid1.RowCount-1];
  data[i][jum[i]].kode:=suistringgrid1.Cells[1,suistringgrid1.RowCount-1];
  data[i][jum[i]].duedate:=strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1]);
  data[i][jum[i]].wp:=strtoint(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]);
  //data[i][jum[i]].cr:=strtofloat(suistringgrid1.Cells[4,suistringgrid1.RowCount-1]);
  //data[i][jum[i]].overdue:=strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]);
  data[i][jum[i]].permintaan:=strtoint(suistringgrid1.Cells[4,suistringgrid1.RowCount-1]);
  data[i][jum[i]].penalty:=strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]);
  data[i][jum[i]].weighted:=strtofloat(suistringgrid1.Cells[7,suistringgrid1.RowCount-1]);
  data[i][jum[i]].tglduedate:=adoquery1.fieldbyname('tglduedate').Asdatetime;
  suistringgrid1.Cells[7,suistringgrid1.RowCount-
1]:=floattostr(RoundTo(strtofloat(suistringgrid1.Cells[7,suistringgrid1.RowCount-1]),-
5));
  suistringgrid1.RowCount:=suistringgrid1.RowCount+1;
  end;
  end;
  adoquery1.Next;
  end;
adoquery1.Close;
adoquery1.SQL.Text:='select j.*,b.produksi as
wp,b.penalty,b.R1,b.R2,b.R3,b.R4,b.R5,b.R6,b.R7,b.R8,b.R9,b.R10 from job j,barang b
where j.kode=b.kode and j.orderid not in(select orderid from jobdetail)';
adoquery1.Open;
while not adoquery1.Eof do
  begin
  suistringgrid1.Cells[0,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('orderid').AsString;
  suistringgrid1.Cells[1,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('kode').AsString;
  if now<adoquery1.fieldbyname('tglduedate').Asdatetime then
    suistringgrid1.Cells[2,suistringgrid1.RowCount-
1]:=floattostr(HoursBetween(now,adoquery1.fieldbyname('tglduedate').Asdatetime))
  else
    suistringgrid1.Cells[2,suistringgrid1.RowCount-1]:='-
'+floattostr(HoursBetween(now,adoquery1.fieldbyname('tglduedate').Asdatetime));
  suistringgrid1.Cells[3,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('wp').AsString;
  suistringgrid1.Cells[4,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('permintaan').AsString;
  suistringgrid1.Cells[5,suistringgrid1.RowCount-
1]:=adoquery1.fieldbyname('penalty').AsString;
```

```
  suistringgrid1.Cells[6,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[4,suistringgrid1.RowCount-
1])*strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]));
  suistringgrid1.Cells[7,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1])-
strtofloat(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]));
  //suistringgrid1.Cells[8,suistringgrid1.RowCount-
1]:=floattostr(strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1])-
strtofloat(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]));

  if adoquery1.fieldbyname('R3').AsString='1' then i:=2
  else if adoquery1.fieldbyname('R7').AsString='1' then i:=3
  else if adoquery1.fieldbyname('R8').AsString='1' then i:=4
  else i:=1;
  inc(jum[i]);
  data[i][jum[i]].orderid:=suistringgrid1.Cells[0,suistringgrid1.RowCount-1];
  data[i][jum[i]].kode:=suistringgrid1.Cells[1,suistringgrid1.RowCount-1];
  data[i][jum[i]].duedate:=strtofloat(suistringgrid1.Cells[2,suistringgrid1.RowCount-1]);
  data[i][jum[i]].wp:=strtoint(suistringgrid1.Cells[3,suistringgrid1.RowCount-1]);
  //data[i][jum[i]].cr:=strtofloat(suistringgrid1.Cells[4,suistringgrid1.RowCount-1]);
  //data[i][jum[i]].overdue:=strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]);
  data[i][jum[i]].permintaan:=strtoint(suistringgrid1.Cells[4,suistringgrid1.RowCount-1]);
  data[i][jum[i]].penalty:=strtofloat(suistringgrid1.Cells[5,suistringgrid1.RowCount-1]);
  data[i][jum[i]].weighted:=strtofloat(suistringgrid1.Cells[7,suistringgrid1.RowCount-1]);
  data[i][jum[i]].tglduedate:=adoquery1.fieldbyname('tglduedate').Asdatetime;
  suistringgrid1.Cells[7,suistringgrid1.RowCount-
1]:=floattostr(RoundTo(strtofloat(suistringgrid1.Cells[7,suistringgrid1.RowCount-1]),-
5));
  suistringgrid1.RowCount:=suistringgrid1.RowCount+1;
  adoquery1.Next;
  end;
end;

procedure TFormJadwal.BtKeluarClick(Sender: TObject);
begin
close;
end;

FUNCTION reaktorprior(demand,wp:longint):integer;
var idx:array[1..7] of integer;
    i,idxmin:integer;
    min:longint;
begin
idx[1]:=1;idx[5]:=6;
idx[2]:=2;idx[6]:=9;
idx[3]:=4;idx[7]:=10;
idx[4]:=5;
```

```
min:=10000;idxmin:=-1;
for i:=1 to 7 do
  begin

//showmessage({inttostr(datemulai[idx[i]])+','+inttostr(jammulai[idx[i]])+','+}inttostr(ceil
(demand/kap[idx[i]])*wp+jammulai[idx[i]]+datemulai[idx[i]]*24)+','+inttostr(min));
  if
(jammulai[idx[i]]+datemulai[idx[i]]*24<min)or((jammulai[idx[i]]+datemulai[idx[i]]*24=
min)and(((kap[idx[i]]-demand>=0)and(kap[idx[idxmin]]-demand<0))or(((kap[idx[i]]-
demand)*(kap[idx[idxmin]]-demand)>=0)and(abs(demand-kap[idx[i]])<abs(demand-
kap[idx[idxmin]])))))) then
    begin
    min:=jammulai[idx[i]]+datemulai[idx[i]]*24;
    idxmin:=i;
    end;
  end;
reaktorprior:=idx[idxmin];
end;

procedure TFormJadwal.BtProsesClick(Sender: TObject);
var i,j,k,l,m,a,lebih:integer;
    permintaan:longint;
    temp:tdata;
    s,s2,s3:string;
begin
for i:=1 to 4 do
  begin
  //jdreaktor[i].jam:=0;
  for j:=1 to jum[i]-1 do
    for k:=j+1 to jum[i] do
      if data[i][j].weighted>data[i][k].weighted then
        begin
        temp:=data[i][j];
        data[i][j]:=data[i][k];
        data[i][k]:=temp;
        end
      ELSE
      if
(data[i][j].weighted=data[i][k].weighted)and(data[i][j].penalty*data[i][j].permintaan<data
[i][k].penalty*data[i][k].permintaan) then
        begin
        temp:=data[i][j];
        data[i][j]:=data[i][k];
        data[i][k]:=temp;
        end
  end;
suimemo1.Text:='';
```

```
suimemo1.Font.Name:='Courier New';
suimemo1.Lines.Add('Penggolongan produk untuk reaktor 1,2,4,5,6,9,10');
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
suimemo1.Lines.Add('| Order ID    | Produk                | Due Date (jam) | WP (jam) |
Permintaan (kg) | Tardiness (Rp/kg) | Tardiness Cost |     ST      | Prioritas |');
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
for j:=1 to jum[1] do
  begin
    s:='| '+data[1][j].orderid+'   | '+data[1][j].kode;
    for i:=1 to 33-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[1][j].duedate);
    for i:=1 to 50-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(data[1][j].wp);
    for i:=1 to 61-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(data[1][j].permintaan);
    for i:=1 to 79-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[1][j].penalty);
    for i:=1 to 99-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[1][j].penalty*data[1][j].permintaan);
    for i:=1 to 116-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[1][j].weighted);
    for i:=1 to 131-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(j);
    for i:=1 to 143-length(s) do
      s:=s+' ';
    s:=s+'|';
    suimemo1.Lines.Add(s);
  end;
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
for k:=2 to 4 do
begin
if k=2 then l:=3;
if k=3 then l:=7;
if k=4 then l:=8;
suimemo1.Lines.Add(' ');
suimemo1.Lines.Add('Penggolongan produk untuk reaktor '+inttostr(l));
```

```
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
suimemo1.Lines.Add('| Order ID    | Produk                | Due Date (jam) | WP (jam) |
Permintaan (kg) | Tardiness (Rp/kg) | Tardiness Cost |      ST      | Prioritas |');
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
for j:=1 to jum[k] do
  begin
    s:='| '+data[k][j].orderid+'   | '+data[k][j].kode;
    for i:=1 to 33-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[k][j].duedate);
    for i:=1 to 50-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(data[k][j].wp);
    for i:=1 to 61-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(data[k][j].permintaan);
    for i:=1 to 79-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[k][j].penalty);
    for i:=1 to 99-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[k][j].penalty*data[k][j].permintaan);
    for i:=1 to 116-length(s) do
      s:=s+' ';
    s:=s+'| '+floattostr(data[k][j].weighted);
    for i:=1 to 131-length(s) do
      s:=s+' ';
    s:=s+'| '+inttostr(j);
    for i:=1 to 143-length(s) do
      s:=s+' ';
    s:=s+'|';
    suimemo1.Lines.Add(s);
  end;
suimemo1.Lines.Add('-------------------------------------------------------------------------------
-------------------------------------------------------------');
end;
for j:=1 to jum[1] do
  begin
  permintaan:=data[1][j].permintaan;
  data[1][j].jum:=0;
  while permintaan>0 do
    begin
    //if j=jum[1]
    k:=reaktorprior(permintaan,data[1][j].wp);
    //showmessage(inttostr(k));
```

```
    inc(data[1][j].jum);
    data[1][j].reaktor[data[1][j].jum]:=k;
    if permintaan<kap[k] then
      begin
      data[1][j].produksi[data[1][j].jum]:=permintaan;
      lebih:=kap[k]-permintaan;
      repeat
      data[1][j].lebih[data[1][j].jum]:=strtoint(InputBox('Kapasitas sisa =
'+inttostr(lebih),'orderId '+data[1][j].orderid+' produk '+data[1][j].kode+#13+'Input
penambahan Kapasitas','0'));
       if data[1][j].lebih[data[1][j].jum]>lebih then
        showmessage('inputan melebihi kapasitas sisa!!!');
      until data[1][j].lebih[data[1][j].jum]<=lebih;
      permintaan:=0;
      end
    else
      begin
      data[1][j].produksi[data[1][j].jum]:=kap[k];
      data[1][j].lebih[data[1][j].jum]:=0;
      permintaan:=permintaan-kap[k];
      end;
    inc(jdreaktor[k].jum);
    data[1][j].idxreaktor[data[1][j].jum]:=jdreaktor[k].jum;
    jdreaktor[k].idx1[jdreaktor[k].jum]:=1;
    jdreaktor[k].idx2[jdreaktor[k].jum]:=j;
    jdreaktor[k].idxdata[jdreaktor[k].jum]:=data[1][j].jum;
    data[1][j].tglmulai[data[1][j].jum]:=strtodatetime(datetimetostr(date+datemulai[k])+'
'+inttostr(jammulai[k])+':00');
    //showmessage(inttostr(data[1][j].wp));
    //showmessage(inttostr(jammulai[k]));
    inc(jammulai[k],data[1][j].wp);
    inc(jdreaktor[k].jam,data[1][j].wp);
    if jammulai[k]>=24 then
      begin
      dec(jammulai[k],24);
      inc(datemulai[k]);
      end;
    //showmessage(datetimetostr(data[1][j].tglduedate));
    data[1][j].tglselesai[data[1][j].jum]:=strtodatetime(datetimetostr(date+datemulai[k])+'
'+inttostr(jammulai[k])+':00');
    //if k<=1 then
      //showmessage(inttostr(k)+','+inttostr(datemulai[k]));
    if data[1][j].tglselesai[data[1][j].jum]>data[1][j].tglduedate then
        begin
        lebih:=HoursBetween(data[1][j].tglselesai[data[1][j].jum],data[1][j].tglduedate);
        m:=jdreaktor[k].jum;
```

```
      while
(m>1)and(lebih>0)and((jdreaktor[k].maintenance=false)or((jdreaktor[k].maintenance)and
(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglselesai[jdreaktor[k].idxdata[m]]>jdre
aktor[k].tglselesai))) do
       begin

dec(lebih,HoursBetween(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglmulai[jdrea
ktor[k].idxdata[m]],data[jdreaktor[k].idx1[m-1]][jdreaktor[k].idx2[m-
1]].tglselesai[jdreaktor[k].idxdata[m-1]]));
       dec(m);
       end;

jammulai[k]:=HourOf(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglselesai[jdreakt
or[k].idxdata[m]]);
      //showmessage(inttostr(jammulai[k]));
      for a:=m to jdreaktor[k].jum-1 do
       begin
        if
(jdreaktor[k].maintenance)and(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[j
dreaktor[k].idxdata[a]]<jdreaktor[k].tglselesai) then
          begin
           jammulai[k]:=HourOf(jdreaktor[k].tglselesai);

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglmulai[jdreaktor[k].idxdata[a+1]]:
=jdreaktor[k].tglselesai;
           inc(jammulai[k],data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].wp);
           if jammulai[k]>=24 then
            begin
            dec(jammulai[k],24);

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(jdreaktor[k].tglselesai+1)+' '+inttostr(jammulai[k])+':00');
            end
           else

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(jdreaktor[k].tglselesai)+' '+inttostr(jammulai[k])+':00');
          end
         else
          begin

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglmulai[jdreaktor[k].idxdata[a+1]]:
=data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreaktor[k].idxdata[a]];
           inc(jammulai[k],data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].wp);
           if jammulai[k]>=24 then
            begin
            dec(jammulai[k],24);
```

```
data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreakt
or[k].idxdata[a]]+1)+' '+inttostr(jammulai[k])+':00');

              end
            else

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreakt
or[k].idxdata[a]])+' '+inttostr(jammulai[k])+':00');
          end;
        end;
      datemulai[k]:=round(strtodate(datetostr(data[1][j].tglselesai[data[1][j].jum]))-
strtodate(datetostr(now)));


//showmessage(inttostr(k)+','+inttostr(datemulai[k])+','+datetimetostr(data[1][j].tglselesai
[data[1][j].jum]));
      end;

    if (jdreaktor[k].jam>=maintenance[k]) then
      begin
      jdreaktor[k].maintenance:=true;
      jdreaktor[k].tglmulai:=data[1][j].tglselesai[data[1][j].jum];
      inc(jammulai[k],4);
      if jammulai[k]>=24 then
        begin
        dec(jammulai[k],24);
        inc(datemulai[k]);

jdreaktor[k].tglselesai:=strtodatetime(datetostr(data[1][j].tglselesai[data[1][j].jum]+1)+'
'+inttostr(jammulai[k])+':00');
        end
      else
      jdreaktor[k].tglselesai:=strtodatetime(datetostr(data[1][j].tglselesai[data[1][j].jum])+'
'+inttostr(jammulai[k])+':00');
      jdreaktor[k].jam:=0;
      end;
   //else if jammulai[k]<15 then jammulai[k]:=15
   if (jammulai[k]<23)and(jammulai[k]>=15) then jammulai[k]:=23;
   end;
  end;
for i:=2 to 4 do
  begin
  if i=2 then k:=3;
  if i=3 then k:=7;
```

```
  if i=4 then k:=8;
  for j:=1 to jum[i] do
    begin
    data[i][j].jum:=Ceil(data[i][j].permintaan/kap[k]);
    for l:=1 to data[i][j].jum-1 do
      begin
      data[i][j].produksi[l]:=kap[k];
      data[i][j].reaktor[l]:=k;
      data[i][j].lebih[l]:=0;
      end;
    if data[i][j].permintaan mod kap[k]=0 then
      begin
      data[i][j].produksi[data[i][j].jum]:=kap[k];
      data[i][j].lebih[data[i][j].jum]:=0;
      end
    else
      begin
      data[i][j].produksi[data[i][j].jum]:=data[i][j].permintaan mod kap[k];
      //data[i][j].lebih[data[i][j].jum]:=kap[k]-(data[i][j].permintaan mod kap[k]);
      lebih:=kap[k]-(data[i][j].permintaan mod kap[k]);
      repeat
      data[i][j].lebih[data[i][j].jum]:=strtoint(InputBox('Kapasitas sisa =
'+inttostr(lebih),'orderId '+data[i][j].orderid+' produk '+data[i][j].kode+#13+'Input
penambahan Kapasitas','0'));
      if data[i][j].lebih[data[i][j].jum]>lebih then
        showmessage('inputan melebihi kapasitas sisa!!!');
      until data[i][j].lebih[data[i][j].jum]<=lebih;
      end;
    data[i][j].reaktor[data[i][j].jum]:=k;
    for l:=1 to data[i][j].jum do
      begin
      inc(jdreaktor[k].jum);
      data[i][j].idxreaktor[l]:=jdreaktor[k].jum;
      jdreaktor[k].idx1[jdreaktor[k].jum]:=i;
      jdreaktor[k].idx2[jdreaktor[k].jum]:=j;
      jdreaktor[k].idxdata[jdreaktor[k].jum]:=l;
      data[i][j].tglmulai[l]:=strtodatetime(datetimetostr(date+datemulai[k])+'
'+inttostr(jammulai[k])+':00');
      inc(jdreaktor[k].jam,data[i][j].wp);
      inc(jammulai[k],data[i][j].wp);
      if jammulai[k]>=24 then
        begin
        dec(jammulai[k],24);
        inc(datemulai[k]);
        end;
      data[i][j].tglselesai[l]:=strtodatetime(datetimetostr(date+datemulai[k])+'
'+inttostr(jammulai[k])+':00');
```

```
    if data[i][j].tglselesai[l]>data[i][j].tglduedate then
      begin
      lebih:=HoursBetween(data[i][j].tglselesai[l],data[i][j].tglduedate);
      m:=jdreaktor[k].jum;
      while
(m>1)and(lebih>0)and((jdreaktor[k].maintenance=false)or((jdreaktor[k].maintenance)and
(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglselesai[jdreaktor[k].idxdata[m]]>jdre
aktor[k].tglselesai))) do
       begin

dec(lebih,HoursBetween(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglmulai[jdrea
ktor[k].idxdata[m]],data[jdreaktor[k].idx1[m-1]][jdreaktor[k].idx2[m-
1]].tglselesai[jdreaktor[k].idxdata[m-1]]));
       dec(m);
       end;

jammulai[k]:=HourOf(data[jdreaktor[k].idx1[m]][jdreaktor[k].idx2[m]].tglselesai[jdreakt
or[k].idxdata[m]]);
      for a:=m to jdreaktor[k].jum-1 do
       begin
         if
(jdreaktor[k].maintenance)and(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[j
dreaktor[k].idxdata[a]]<jdreaktor[k].tglselesai) then
           begin
             jammulai[k]:=HourOf(jdreaktor[k].tglselesai);

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglmulai[jdreaktor[k].idxdata[a+1]]:
=jdreaktor[k].tglselesai;
             inc(jammulai[k],data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].wp);
             if jammulai[k]>=24 then
               begin
               dec(jammulai[k],24);

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(jdreaktor[k].tglselesai+1)+' '+inttostr(jammulai[k])+':00');
               end
             else

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(jdreaktor[k].tglselesai)+' '+inttostr(jammulai[k])+':00');
           end
          else
           begin

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglmulai[jdreaktor[k].idxdata[a+1]]:
=data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreaktor[k].idxdata[a]];
             inc(jammulai[k],data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].wp);
```

```
            if jammulai[k]>=24 then
              begin
              dec(jammulai[k],24);

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreakt
or[k].idxdata[a]]+1)+' '+inttostr(jammulai[k])+':00');

              end
            else

data[jdreaktor[k].idx1[a+1]][jdreaktor[k].idx2[a+1]].tglselesai[jdreaktor[k].idxdata[a+1]]:
=strtodatetime(datetostr(data[jdreaktor[k].idx1[a]][jdreaktor[k].idx2[a]].tglselesai[jdreakt
or[k].idxdata[a]])+' '+inttostr(jammulai[k])+':00');
          end;
        end;
       datemulai[k]:=round(strtodate(datetostr(data[i][j].tglselesai[l]))-
strtodate(datetostr(now))){round(data[i][j].tglselesai[l]-now)};
       end;
     if (jdreaktor[k].jam>=maintenance[k]) then
       begin
       jdreaktor[k].maintenance:=true;
       jdreaktor[k].tglmulai:=data[i][j].tglselesai[l];
       inc(jammulai[k],4);
       if jammulai[k]>=24 then
         begin
         dec(jammulai[k],24);
         inc(datemulai[k]);
         jdreaktor[k].tglselesai:=strtodatetime(datetostr(data[i][j].tglselesai[l]+1)+'
'+inttostr(jammulai[k])+':00');
         end
       else
       jdreaktor[k].tglselesai:=strtodatetime(datetostr(data[i][j].tglselesai[l])+'
'+inttostr(jammulai[k])+':00');
       jdreaktor[k].jam:=0;
       end;
     //else if jammulai[k]<15 then jammulai[k]:=15
     if (jammulai[k]<23)and(jammulai[k]>=15) then jammulai[k]:=23;
     end;
   end;
 end;
//for i:=1 to 10 do
  //showmessage(inttostr(i)+','+inttostr(datemulai[i]*24+jammulai[i]));
btproses.Enabled:=false;
btchart.Enabled:=true;
btsubmit.Enabled:=true;
end;
```

```
procedure TFormJadwal.BtChartClick(Sender: TObject);
begin
formchart.showmodal;
end;

procedure TFormJadwal.BtSubmitClick(Sender: TObject);
var i,j,k,l:integer;
begin
datamodule1.ADOTableJobDetail.First;
while not datamodule1.ADOTableJobDetail.Eof do
  begin
  if
(now<datamodule1.ADOTableJobDetail.fieldbyname('tglmulai').Asdatetime)AND(datam
odule1.ADOTableJobDetail.fieldbyname('orderid').AsString<>'MAINTENANCE')and(H
oursBetween(now,datamodule1.ADOTableJobDetail.fieldbyname('tglmulai').Asdatetime)
>1) then
    datamodule1.ADOTableJobDetail.Delete
  else
    datamodule1.ADOTableJobDetail.Next;
  end;
for i:=1 to 4 do
  for j:=1 to jum[i] do
    for k:=1 to data[i][j].jum do
      begin
      datamodule1.ADOTableJobDetail.Append;

datamodule1.ADOTableJobDetail.FieldByName('orderid').AsString:=data[i][j].orderid;

datamodule1.ADOTableJobDetail.FieldByName('reaktor').AsString:=inttostr(data[i][j].re
aktor[k]);

datamodule1.ADOTableJobDetail.FieldByName('produksi').AsString:=inttostr(data[i][j].
produksi[k]);

datamodule1.ADOTableJobDetail.FieldByName('kelebihan').Asstring:=inttostr(data[i][j].
lebih[k]);

datamodule1.ADOTableJobDetail.FieldByName('tglmulai').AsDateTime:=data[i][j].tglm
ulai[k];

datamodule1.ADOTableJobDetail.FieldByName('tglselesai').AsDateTime:=data[i][j].tgls
elesai[k];
      datamodule1.ADOTableJobDetail.Post;
      end;
for i:=1 to 10 do
  begin
```

```
    if jdreaktor[i].maintenance then
    begin
    datamodule1.ADOTableJobDetail.Append;

datamodule1.ADOTableJobDetail.FieldByName('orderid').AsString:='MAINTENANCE'
;
    datamodule1.ADOTableJobDetail.FieldByName('reaktor').AsString:=inttostr(i);
    datamodule1.ADOTableJobDetail.FieldByName('produksi').AsString:='0';
    datamodule1.ADOTableJobDetail.FieldByName('kelebihan').Asstring:='0';

datamodule1.ADOTableJobDetail.FieldByName('tglmulai').AsDateTime:=jdreaktor[i].tgl
mulai;

datamodule1.ADOTableJobDetail.FieldByName('tglselesai').AsDateTime:=jdreaktor[i].t
glselesai;
    datamodule1.ADOTableJobDetail.Post;
    end;
  end;
for i:=1 to 10 do
  begin
  datamodule1.ADOTableReaktor.Locate('nama','R'+inttostr(i),[loCaseInsensitive]);
  datamodule1.ADOTableReaktor.Edit;
  datamodule1.ADOTableReaktor.FieldByName('pakai').AsInteger:=jdreaktor[i].jam;
  datamodule1.ADOTableReaktor.Post;
  end;
btsubmit.Enabled:=false;
end;

end.
```

Listing Chart

```
unit Chart;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, SUIMgr, ExtCtrls, SUIForm, DB, ADODB;

type
  TFormchart = class(TForm)
    suiForm1: TsuiForm;
    suiThemeManager1: TsuiThemeManager;
    ScrollBox1: TScrollBox;
    Image1: TImage;
    ADOQuery1: TADOQuery;
    procedure FormCreate(Sender: TObject);
```

```
    procedure FormShow(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  Formchart: TFormchart;
  clr:array[1..100]of tcolor;
implementation
uses datamodule, DateUtils, Jadwal, Math;
{$R *.dfm}

procedure TFormchart.FormCreate(Sender: TObject);
var i:integer;
begin
randomize;
image1.Canvas.Create;
for i:=1 to datamodule1.ADOTable1.RecordCount+1 do
  clr[i]:=RGB(random(250)+1,random(250)+1,random(250)+1);
end;

procedure TFormchart.FormShow(Sender: TObject);
var i,l:integer;
    j,k,m,n,o,p:word;
begin
with image1.Canvas do
  begin
  Brush.Color:=clwhite;
  Rectangle(0,0,image1.Width,image1.Height);
  MoveTo(50,60);
  LineTo(50,600);
  LineTo(1480,600);
  for i:=1 to 10 do
    TextOut(10,600-50*i,'R'+inttostr(i));
  for i:=1 to datamodule1.ADOTable1.RecordCount do
    begin
    datamodule1.ADOTable1.RecNo:=i;
    Brush.Color:=clr[i];
    Rectangle(70*i,10,60+70*i,30);
    Brush.Color:=clwhite;
    TextOut(5+70*i,15,datamodule1.ADOTable1.fieldbyname('kode').AsString);
    end;
  j:=HourOf(now)+1;
  if j>24 then j:=j-24;
  k:=j;
```

```
  l:=0;
  for i:=1 to 90 do
    begin
      if (i=1)or(k=7)or(k=15)or(k=23) then
         begin
         MoveTo(50+15*i,595);
         LineTo(50+15*i,605);
         TextOut(35+15*i,610,inttostr(k)+':00');
         TextOut(20+15*i,625,formatdatetime('dd MMM yy',(date+l)));
         end;
      inc(k);
      if k>24 then
        begin
          k:=k-24;
          inc(l);
        end;
    end;
  with formjadwal do
  begin
  m:=HourOf(now)+1;
  //if MinuteOf(now)<30 then dec(m);
  if m>=24 then m:=m-24;
  for i:=1 to 4 do
    for j:=1 to jum[i] do
      for k:=1 to data[i][j].jum do
        begin
          //showmessage(datetimetostr(data[i][j].tglmulai[k])+'                                    -
'+datetimetostr(data[i][j].tglselesai[k]));
          l:=HourOf(data[i][j].tglmulai[k]);
          //showmessage(timetostr(data[i][j].tglmulai[k]));
          n:=round(strtodate(datetostr(data[i][j].tglmulai[k]))-strtodate(datetostr(date)));
          datamodule1.ADOTable1.Locate('kode',data[i][j].kode,[]);
          image1.Canvas.Brush.Color:=clr[datamodule1.ADOTable1.RecNo];
          image1.Canvas.Rectangle(50+15*(l-m+1+24*n),600-
50*data[i][j].reaktor[k],50+15*(l-m+1+data[i][j].wp+24*n),600-
50*data[i][j].reaktor[k]+30);
          image1.Canvas.Brush.Color:=clwhite;
          image1.Canvas.Pen.Color:=clwhite;
          image1.Canvas.TextOut(55+15*(l-m+1+24*n),605-
50*data[i][j].reaktor[k],data[i][j].orderid+' ('+data[i][j].kode+')');
        end;
  for i:=1 to 10 do
    if formjadwal.jdreaktor[i].maintenance=true then
      begin
        l:=HourOf(formjadwal.jdreaktor[i].tglmulai);
        n:=round(strtodate(datetostr(formjadwal.jdreaktor[i].tglmulai))-
strtodate(datetostr(date)));
```

```
       image1.Canvas.Brush.Color:=clblack;
       image1.Canvas.Rectangle(50+15*(l-m+1+24*n),600-50*i,50+15*(l-
m+5+24*n),600-50*i+30);
       image1.Canvas.Brush.Color:=clwhite;
       image1.Canvas.Pen.Color:=clwhite;
       image1.Canvas.TextOut(55+15*(l-m+1+24*n),605-50*i,'M');
     end;
  end;
  for i:=1 to 10 do
    begin
    adoquery1.Close;
    adoquery1.SQL.Text:='select orderid,tglmulai,tglselesai as akhir,reaktor from jobdetail
where reaktor='+inttostr(i)+' and tglselesai>=now()';
    adoquery1.Open;
    while not adoquery1.Eof do
      begin
      if
((HoursBetween(now,adoquery1.fieldbyname('tglmulai').Asdatetime)<=1)or(adoquery1.f
ieldbyname('akhir').Asdatetime<formjadwal.dateakhir[adoquery1.fieldbyname('reaktor').
Asinteger])or(adoquery1.fieldbyname('orderid').AsString='MAINTENANCE')) then
       begin
         l:=HourOf(adoquery1.FieldByName('tglmulai').AsDateTime);
         n:=Floor(adoquery1.FieldByName('tglmulai').AsDateTime-date);
         o:=HourOf(adoquery1.FieldByName('akhir').AsDateTime);
         p:=Floor(adoquery1.FieldByName('akhir').AsDateTime-date);
         image1.Canvas.Brush.Color:=clblack;
         image1.Canvas.Rectangle(50+15*(l-m+1+24*n),600-50*i,50+15*(o-
m+1+24*p),600-50*i+30);
         image1.Canvas.Brush.Color:=clwhite;
         image1.Canvas.Pen.Color:=clwhite;
         image1.Canvas.TextOut(55+15*(l-m+1+24*n),605-
50*i,adoquery1.FieldByName('orderid').AsString);
       end;
      adoquery1.Next;
      end;
    end;
  end;
end;

end.
```

Listing Laporan Produksi

```
unit LapProduksi;

interface

uses
```

```
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, DB, ADODB, SUIDlg, SUIMgr, SUIButton, StdCtrls, SUIEdit,
  SUIImagePanel, SUIGroupBox, ExtCtrls, SUIForm,
  ComCtrls, SUIRadioGroup, frxClass, frxDBSet, frxDesgn, frxExportRTF,
  frxExportXLS, frxExportPDF;

type
  TFormLapProduksi = class(TForm)
    suiForm1: TsuiForm;
    suiGroupBox1: TsuiGroupBox;
    Preview: TsuiButton;
    BtExit: TsuiButton;
    suiThemeManager1: TsuiThemeManager;
    DateTimePicker1: TDateTimePicker;
    DateTimePicker2: TDateTimePicker;
    Label1: TLabel;
    Label3: TLabel;
    ADOQuery1: TADOQuery;
    frxReport1: TfrxReport;
    frxDesigner1: TfrxDesigner;
    frxDBDataset1: TfrxDBDataset;
    frxPDFExport1: TfrxPDFExport;
    frxXLSExport1: TfrxXLSExport;
    frxRTFExport1: TfrxRTFExport;
    procedure PreviewClick(Sender: TObject);
    procedure BtExitClick(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
    procedure DateTimePicker1Enter(Sender: TObject);
    procedure DateTimePicker1Exit(Sender: TObject);
    procedure DateTimePicker2Enter(Sender: TObject);
    procedure DateTimePicker2Exit(Sender: TObject);
    procedure FormShow(Sender: TObject);
    procedure frxReport1GetValue(const VarName: String;
      var Value: Variant);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  FormLapProduksi: TFormLapProduksi;

implementation

uses Menu,datamodule;
```

```
{$R *.dfm}

procedure TFormLapProduksi.PreviewClick(Sender: TObject);
begin
adoquery1.Close;
adoquery1.sql.text:='select j.kode,j.tglduedate,j.permintaan,d.* from job j,jobdetail d
where j.orderid=d.orderid and
d.tglmulai>=datevalue('+quotedstr(datetostr(datetimepicker1.Date))+') and
tglmulai<=datevalue('+quotedstr(datetostr(datetimepicker2.Date))+')+1 union all (select
'+quotedstr(' ')+' as kode,null as tglduedate,0 as permintaan,d.* from jobdetail d where
d.orderid='+QUOTEDSTR('MAINTENANCE')+' and
d.tglmulai>=datevalue('+quotedstr(datetostr(datetimepicker1.Date))+') and
tglmulai<=datevalue('+quotedstr(datetostr(datetimepicker2.Date))+')+1)';
adoquery1.open;
frxReport1.LoadFromFile(extractfilepath(application.exename)+'laporan.fr3');
frxreport1.showreport;
end;

procedure TFormLapProduksi.BtExitClick(Sender: TObject);
begin
close;
end;

procedure TFormLapProduksi.FormClose(Sender: TObject;
  var Action: TCloseAction);
begin
formmenu.show;
end;

procedure TFormLapProduksi.DateTimePicker1Enter(Sender: TObject);
begin
DateTimePicker1.Color:=clYellow;
end;

procedure TFormLapProduksi.DateTimePicker1Exit(Sender: TObject);
begin
DateTimePicker1.Color:=clWhite;
end;

procedure TFormLapProduksi.DateTimePicker2Enter(Sender: TObject);
begin
DateTimePicker2.Color:=clYellow;
end;

procedure TFormLapProduksi.DateTimePicker2Exit(Sender: TObject);
begin
DateTimePicker2.Color:=clWhite;
```

```
end;

procedure TFormLapProduksi.FormShow(Sender: TObject);
begin
datetimepicker1.DateTime:=now;
datetimepicker2.DateTime:=now;
end;

procedure TFormLapProduksi.frxReport1GetValue(const VarName: String;
  var Value: Variant);
begin
if AnsiUpperCase(VarName) = 'AWAL' then
    Value := formatdatetime('dd MMMM yyyy',datetimepicker1.date);
if AnsiUpperCase(VarName) = 'AKHIR' then
    Value := formatdatetime('dd MMMM yyyy',datetimepicker2.date);
end;

end.
```

Listing Data Module

```
unit Datamodule;

interface

uses
  SysUtils, Classes, SUIMgr, DB, ADODB;

type
  TDataModule1 = class(TDataModule)
    suiFileTheme1: TsuiFileTheme;
    ADOTable1: TADOTable;
    ADOConnection1: TADOConnection;
    ADOTableJob: TADOTable;
    ADOTableJobDetail: TADOTable;
    ADOTableReaktor: TADOTable;
  private
    { Private declarations }
  public
    { Public declarations }
  end;
var
  DataModule1: TDataModule1;

implementation

{$R *.dfm}
```

end.