Tabel 5.4
Encoding Kromosom Awal

	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)		FG2(A2)						
Kromosom 1	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5		M4					M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1

	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)		FG2(A2)						
Kromosom 2	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5		M4					M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1

	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)		FG2(A2)						
Kromosom 3	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5		M4					M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2

	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)		FG2(A2)						
Kromosom 4	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5		M4					M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	1-9-1	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-3	1-4-1	2-4-1	1-4-2	2-4-2	2-9-1	1-9-2	1-9-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-2	2-4-1	2-4-2	1-4-1	1-4-3	1-9-2	2-9-1	1-9-1

3. Melakukan *Decoding*

Proses *Decoding* merupakan proses untuk menghitung OMH. Caranya dengan melihat kode mesin yang pertama kali muncul pada gen, lalu setiap mesin ditugaskan sesuai dengan urutannya. Proses *Decoding* untuk kromosom 1 sampai 4 dapat dilihat pada Lampiran D.

Tabel 5.7
Daerah *Crossing Site*

	1	2	3	4	5	6	7			8	9	10	11	12	13	14	15						16	17	18	19		20	21								
Kromosom 1	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1

Kromosom 2	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1

Kromosom 3	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2

Kromosom 4	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	1-9-1	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-3	1-4-1	2-4-1	1-4-2	2-4-2	2-9-1	1-9-2	1-9-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-2	2-4-1	2-4-2	1-4-1	1-4-3	1-9-2	2-9-1	1-9-1

Tabel 5.8
Kromosom *Offspring* Hasil *Crossover*

	1	2	3	4	5	6	7			8	9	10	11	12	13	14	15						16	17	18	19		20	21								
Kromosom	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
crossover 1	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1

Kromosom	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
crossover 2	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-1-1	2-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1

Kromosom	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
crossover 3	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2

Kromosom	FG3(A1)									A			B		C		FG1(A1)							F		G		FG2(A1)		FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4						M9	M1	M2	M1		M5		M4						M9		
crossover 4	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	1-9-1	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-3	2-4-2	1-4-1	1-4-2	2-4-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	2-5-1	1-5-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-2	2-9-1	1-9-1

Tabel 5.9
Decoding Kromosom *Offspring Crossover* 4

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		2-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-2	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.528,36
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	1-4-1	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80

Tabel 5.9
Decoding Kromosom *Offspring Crossover* 4 (Lanjutan)

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		5								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	2-9-1	8	144.000	1.440	25	5.760	0	108.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 403,20
			1-9-2	6	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	2-9-1	7	108.000	1.440	25	4.320	0	72.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 352,80
			1-9-2	6	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	2-9-1	5	72.000	720	25	2.880	0	54.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 126,00
			1-9-2	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-9-1	10	10	*infinite*	3.600	-	-	0	*infinite*	3.600	3.600	Pallet	24	23	157	Rp 1,98	Rp 3.108,60
BB F		0	1-1-1	10	100.800	4.500	9	11.200	0	60.300	4.500	53	Pallet	1	1	53	Rp 1,98	Rp 1.049,40
			2-1-1	16	144.000	0	9	16.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
F		1-1-1	1-2-1	5	104.400	4.500	4	26.100	0	86.400	4.500	4.500	Keranjang	9	11	500	Rp 0,42	Rp 1.050,00
BB G		0	1-1-1	10	60.300	4.500	12	5.025	0	6.300	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.861,20
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -

Tabel 5.9
Decoding Kromosom *Offspring Crossover* 4 (Lanjutan)

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 1.344,00
	G	1-1-1		9								2.880	Keranjang	30	29	100	Rp 0,42	Rp 378,00
	H	0		17								2.880	Keranjang	23	27	126	Rp 0,42	Rp 899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.134,00
	G	1-1-1		16								1.620	Keranjang	30	29	56	Rp 0,42	Rp 376,32
	H	0		20								1.620	Keranjang	23	27	71	Rp 0,42	Rp 596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	144.000	2.880	50	2.880	0	0	2.880	2.880	Keranjang	23	17	170	Rp 0,42	Rp 357,00
	I	0		14								2.880	Keranjang	23	17	170	Rp 0,42	Rp 999,60
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		18								1.440	Keranjang	23	17	85	Rp 0,42	Rp 642,60
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 46,20
	I	0		19								180	Keranjang	23	17	11	Rp 0,42	Rp 87,78
FG2(A2)		1-4-2	1-9-2	6	39.000	2.880	25	1.560	1.320	0	1.560	1.560	Keranjang	22	22	71	Rp 0,42	Rp 178,92
			2-9-1	7	54.000	1.320	25	2.160	0	21.000	1.320	1.320	Keranjang	22	22	60	Rp 0,42	Rp 176,40
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	21.000	1.440	25	840	600	0	840	840	Keranjang	22	22	39	Rp 0,42	Rp 81,90
			1-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		2-4-2	1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	10	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 37,80
FG2(A2)		1-9-2		10	11	*infinite*	1.560	-	-	0	infinite	1.560	1.560	Pallet	41	42	39	Rp 1,98	Rp 849,42
		2-9-1		10	10	*infinite*	2.160	-	-	0	infinite	2.160	2.160	Pallet	41	42	53	Rp 1,98	Rp 1.049,40
		1-9-1		10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		**Rp 40.700,70**

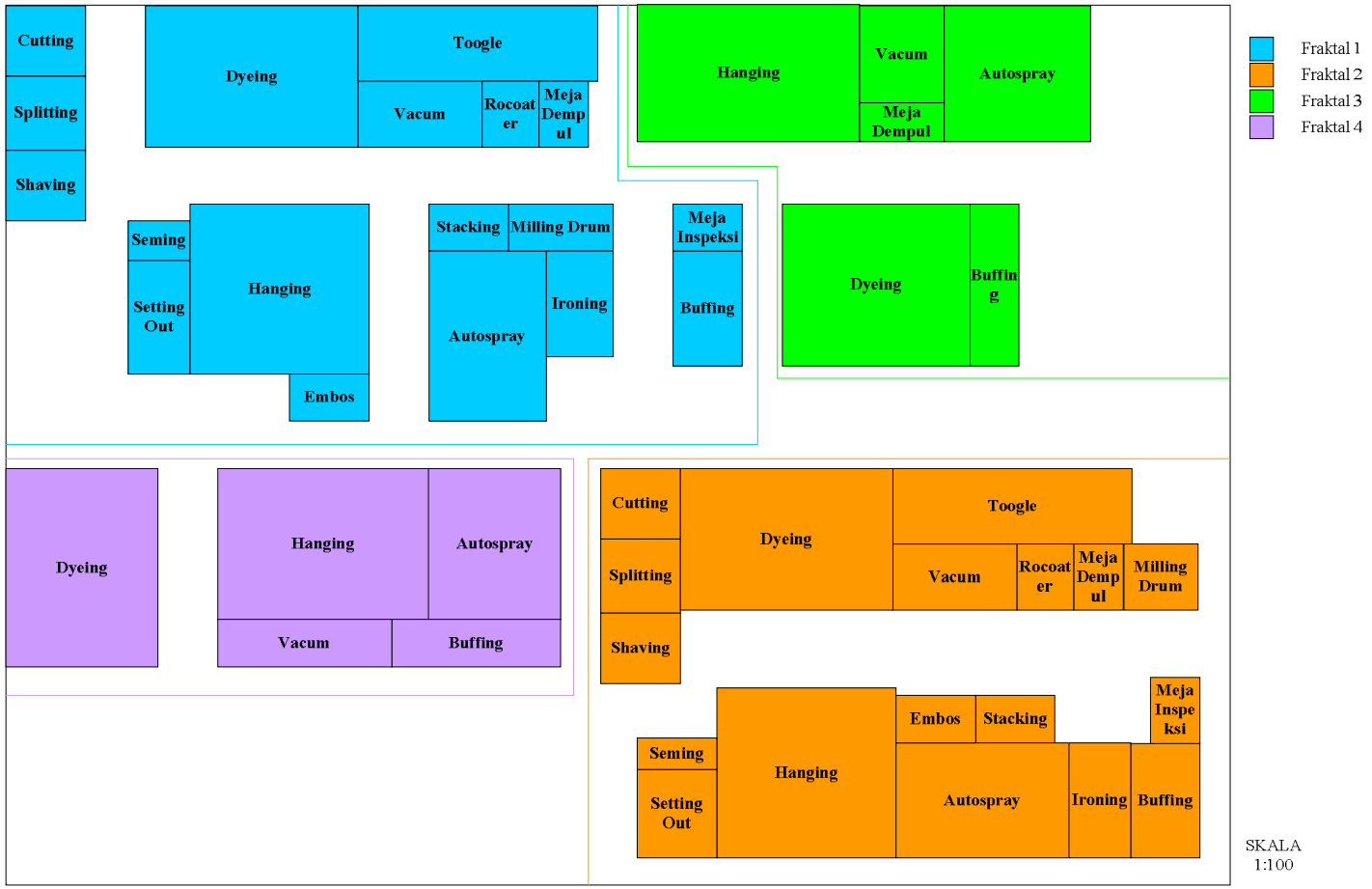
Tabel 5.10
Bilangan *Random* untuk Setiap Kromosom

	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
Kromosom 1	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
	1-2-1	1-3-1	1-7-1	1-2-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1
	0,555	0,780	0,188	0,599	0,300	0,793	0,760	0,263	0,718	0,144	0,365	0,030	0,952	0,847	0,603	0,079	0,211	0,333	0,909	0,525	0,129	0,220	0,406	0,905	0,613	0,488	0,334	0,254	0,177	0,232	0,338	0,480	0,722	0,916	0,382	0,177	0,868	0,408	0,957	0,812	0,922	0,904
	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
Kromosom 2	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
	1-2-1	1-3-1	1-7-1	1-2-1	1-6-1	1-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1
	0,648	0,349	0,988	0,029	0,326	0,561	0,309	0,916	0,256	0,547	0,464	0,551	0,632	0,632	0,071	0,987	0,199	0,685	0,495	0,339	0,623	0,096	0,150	0,221	0,557	0,265	0,097	0,026	0,318	0,018	0,645	0,800	0,891	0,857	0,073	0,066	0,845	0,456	0,543	0,786	0,028	0,306
	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
Kromosom 3	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
	1-2-1	1-3-1	1-7-1	1-2-1	1-6-1	1-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2
	0,767	0,062	0,869	0,682	0,842	0,703	0,744	0,543	0,892	0,738	0,194	0,806	0,647	0,119	0,498	0,001	0,914	0,638	0,067	0,120	0,345	0,213	0,703	0,178	0,177	0,464	0,324	0,731	0,967	0,322	0,624	0,096	0,364	0,802	0,578	0,760	0,920	0,698	0,408	0,860	0,341	0,817
	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
Kromosom 4	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
	1-2-1	1-3-1	1-7-1	1-2-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-3	1-4-1	2-4-1	1-4-2	2-4-2	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-1	1-9-2	2-9-1
	0,802	0,779	0,600	0,868	0,114	0,825	0,196	0,382	0,456	0,445	0,385	0,627	0,786	0,481	0,047	0,359	0,942	0,737	0,809	0,022	0,253	0,130	0,633	0,110	0,099	0,576	0,767	0,862	0,266	0,262	0,751	0,148	0,275	0,128	0,724	0,719	0,366	0,284	0,379	0,525	0,198	0,908

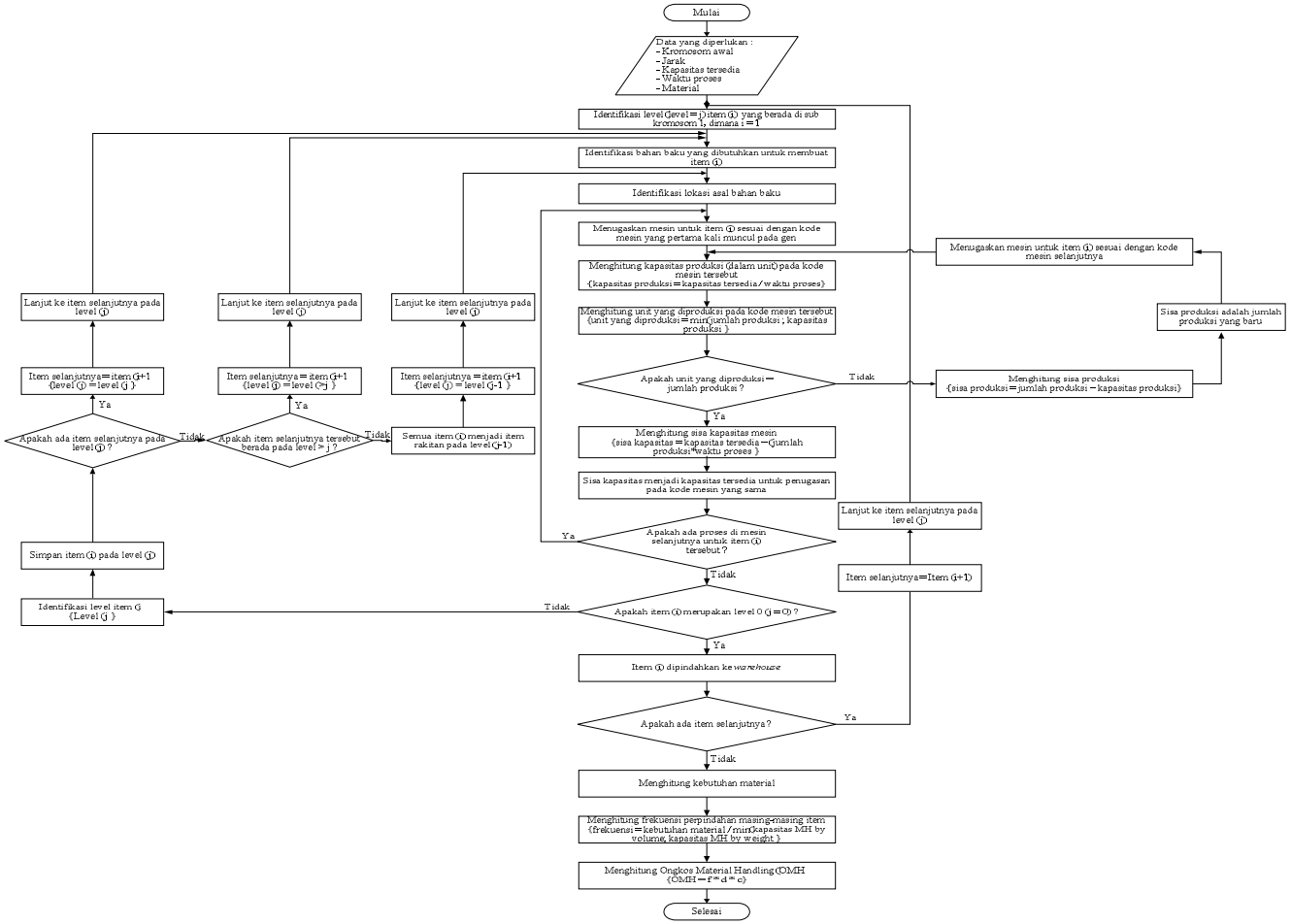
Kromosom	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
crossover 1	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1
	0,627	0,615	0,052	0,087	0,503	0,902	0,418	0,297	0,780	0,809	0,462	0,809	0,532	0,404	0,569	0,256	0,054	0,813	0,285	0,581	0,067	0,961	0,743	0,199	0,325	0,859	0,803	0,371	0,793	0,897	0,441	0,298	0,058	0,978	0,004	0,586	0,907	0,693	0,104	0,018	0,754	0,570
Kromosom	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
crossover 2	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-1-1	2-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1
	0,450	0,960	0,681	0,190	0,766	0,829	0,857	0,879	0,775	0,827	0,271	0,023	0,198	0,895	0,476	0,311	0,006	0,515	0,789	0,406	0,956	0,384	0,206	0,759	0,832	0,862	0,902	0,115	0,477	0,408	0,434	0,061	0,502	0,443	0,017	0,558	0,333	0,438	0,634	0,163	0,483	0,597
Kromosom	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
crossover 3	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2
	0,884	0,735	0,318	0,243	0,782	0,225	0,271	0,983	0,248	0,588	0,842	0,478	0,309	0,665	0,724	0,862	0,738	0,167	0,851	0,652	0,817	0,375	0,721	0,818	0,837	0,216	0,585	0,683	0,184	0,556	0,128	0,152	0,427	0,672	0,732	0,955	0,751	0,563	0,633	0,318	0,208	0,022
Kromosom	FG3(A1)									A			B		C		FG1(A1)									F		G	FG2(A1)	FG2(A2)							
offspring	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9				M1	M2	M1	M5	M4					M9		
crossover 4	2-7-1	2-8-1	2-7-1	2-8-1	2-6-1	2-8-1	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	1-1-1	2-1-1	2-5-1	1-5-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-1	1-9-2	2-9-1
	0,532	0,854	0,877	0,613	0,210	0,491	0,751	0,112	0,818	0,786	0,536	0,108	0,769	0,584	0,774	0,004	0,212	0,272	0,098	0,568	0,767	0,859	0,829	0,945	0,084	0,123	0,391	0,572	0,468	0,135	0,343	0,614	0,851	0,715	0,246	0,157	0,455	0,001	0,231	0,658	0,356	0,749

Tabel 5.11
Kromosom *Offspring* Hasil Mutasi

Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
1	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
2	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	1-9-1	2-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
3	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
4	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	2-1-1	1-1-1	1-3-1	1-4-1	1-4-3	2-4-1	1-4-2	2-4-2	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-1	1-9-2	2-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
5	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-1	1-4-2	1-4-3	2-4-1	2-4-2	1-9-1	1-9-2	2-9-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-2	1-4-1	1-4-3	2-4-1	2-4-2	1-9-2	1-9-1	2-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
6	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-2	1-4-3	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	1-4-3	1-4-2	2-4-1	2-4-2	1-4-1	1-9-2	2-9-1	1-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
7	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-3-1	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-3-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	2-9-1	1-9-1	1-9-2	1-1-1	2-1-1	1-2-1	1-1-1	2-1-1	1-5-1	2-5-1	1-4-3	2-4-1	2-4-2	1-4-1	1-4-2	1-9-2	1-9-1	2-9-1
Kromosom	FG3(A1)									A			B		C		FG1(A1)								F		G	FG2(A1)		FG2(A2)							
offspring mutasi	M7	M8	M7	M8	M6	M8	M9			M1	M2	M3	M1	M2	M1	M3	M4					M9			M1	M2	M1	M5		M4				M9		
8	1-7-1	1-8-1	1-7-1	1-8-1	1-6-1	1-8-1	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	1-3-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	1-3-1	2-4-1	2-4-2	1-4-1	1-4-2	1-4-3	1-9-1	1-9-2	2-9-1	2-1-1	1-1-1	1-2-1	2-1-1	1-1-1	2-5-1	1-5-1	2-4-1	2-4-2	1-4-1	1-4-3	1-4-2	1-9-1	1-9-2	2-9-1



Gambar 4.4
Layout Fraktal



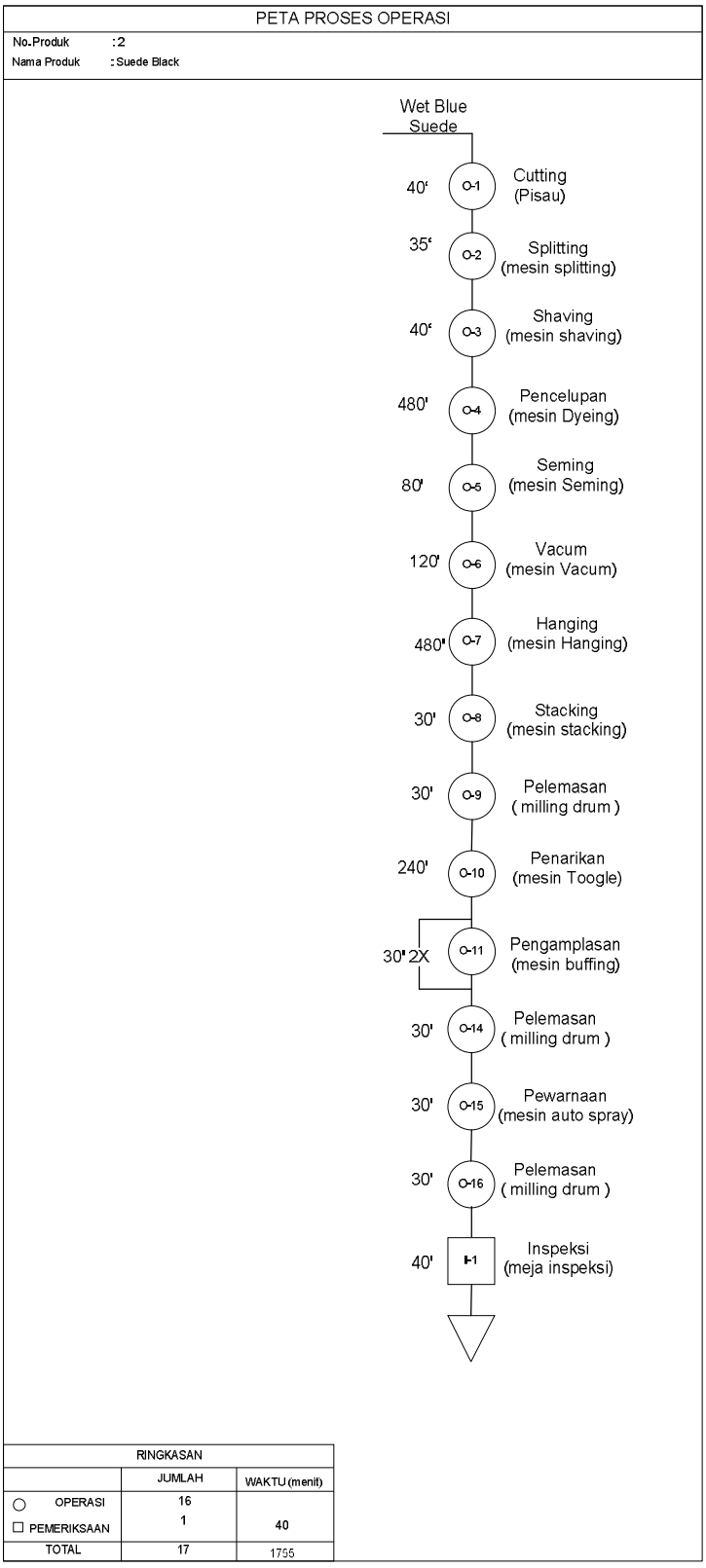
Gambar 3.4
Flow Chart Decoding

LAMPIRAN A

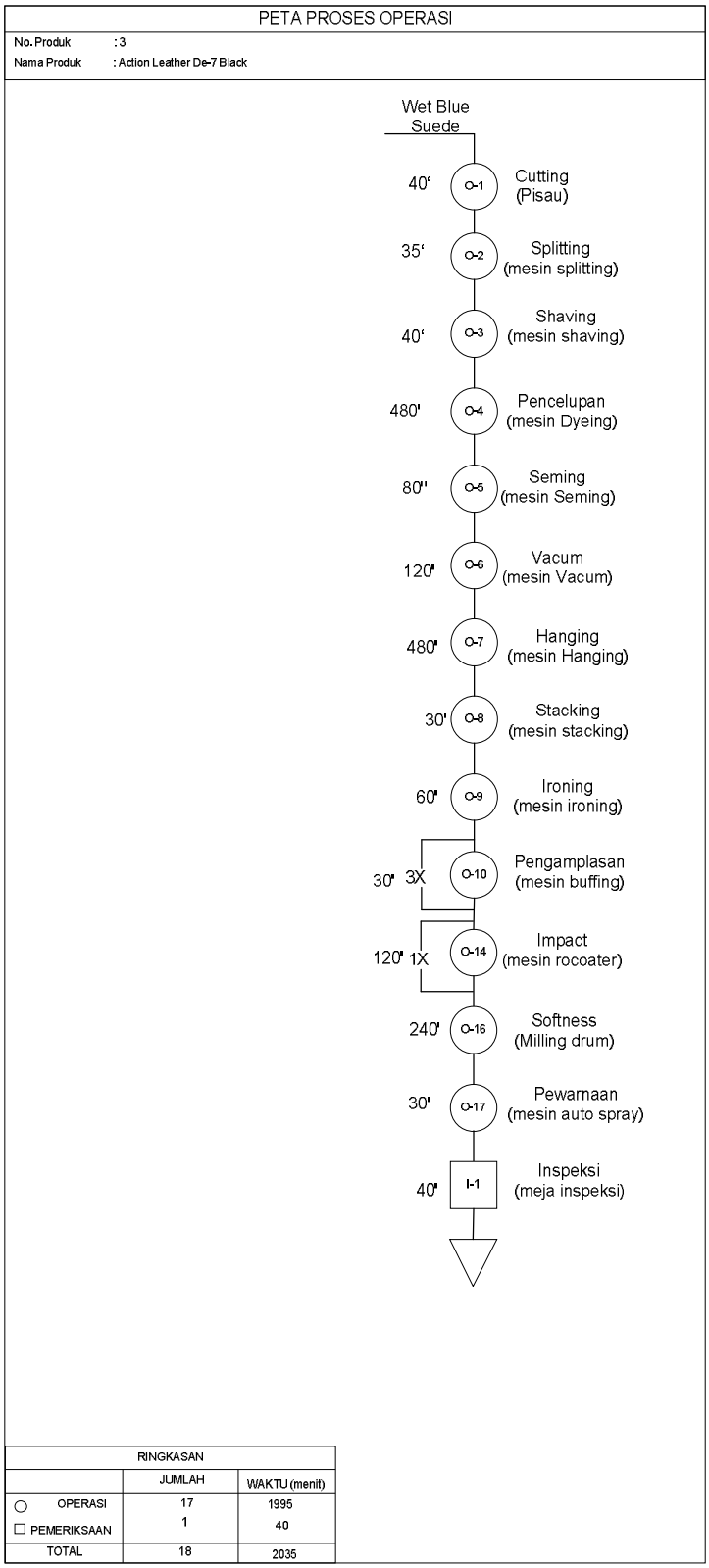
Peta Proses Operasi (PPO)

Kasus Perusahaan

1. Peta Proses Operasi Produk 2



2. Peta Proses Operasi Produk 3

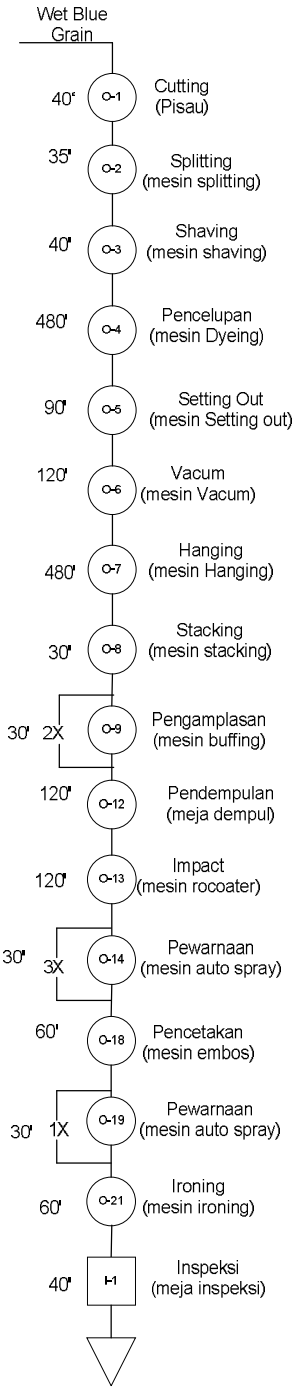


3. Peta Proses Operasi Produk 4

PETA PROSES OPERASI

No.Produk : 4

Nama Produk : Full Grain Linning

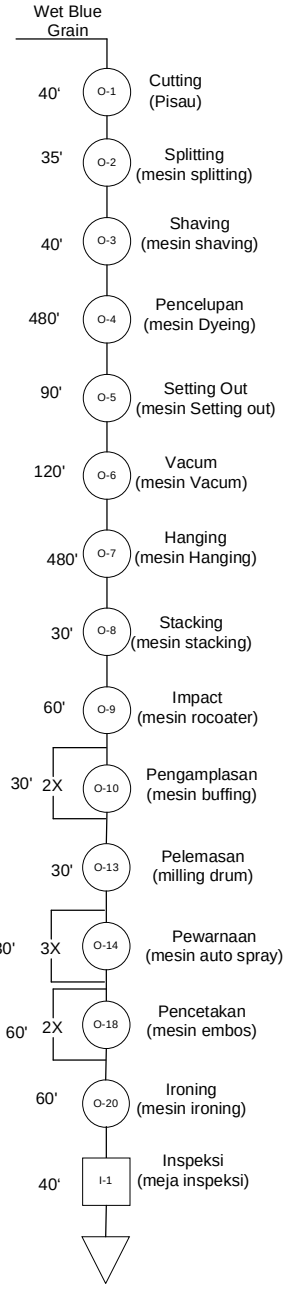


RINGKASAN		
	JUMLAH	WAKTU (menit)
○ OPERASI	21	40
□ PEMERIKSAAN	1	
TOTAL	22	1965

4. Peta Proses Operasi Produk 5

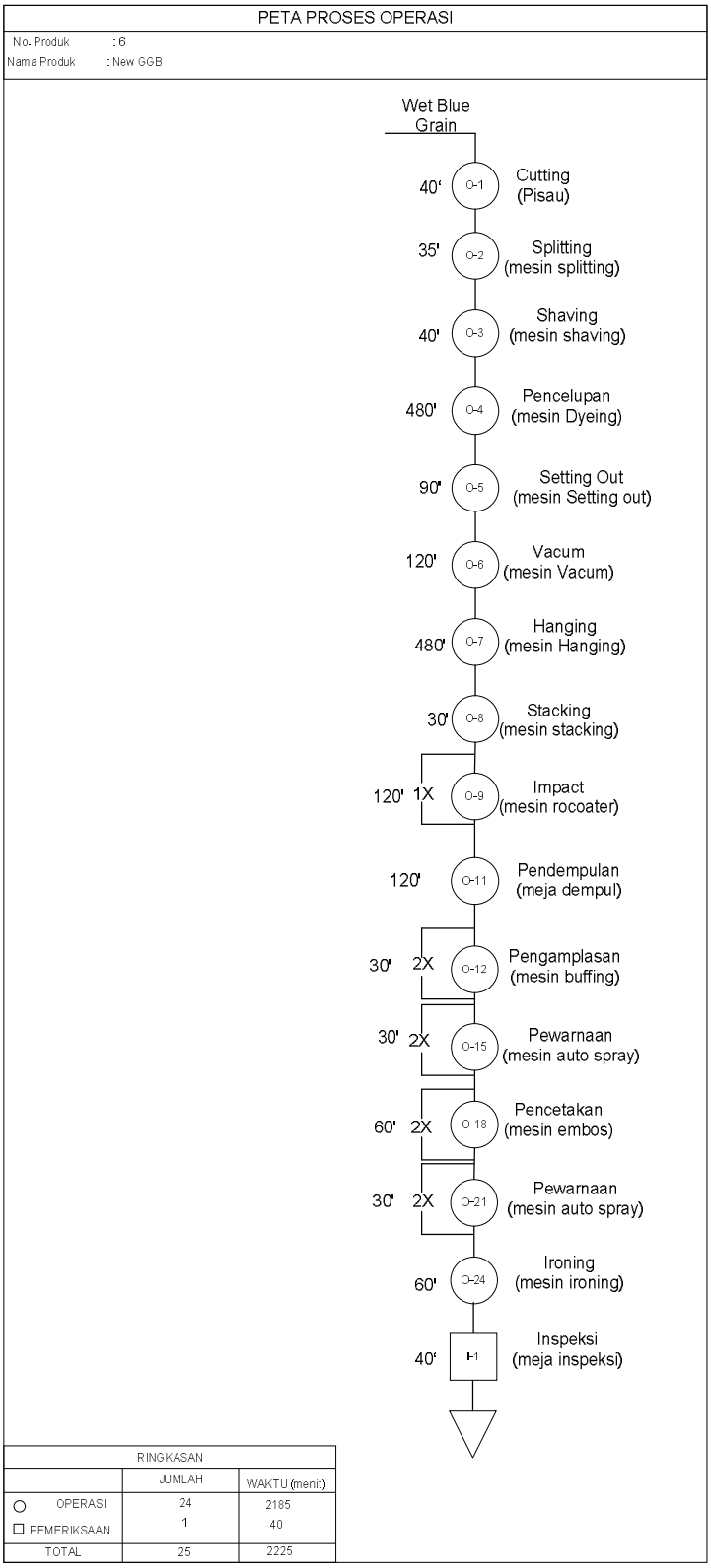
PETA PROSES OPERASI

No. Produk : 5
Nama Produk : Waxy



RINGKASAN		
	JUMLAH	WAKTU (menit)
○ OPERASI	20	1855
□ PEMERIKSAAN	1	40
TOTAL	21	1895

5. Peta Proses Operasi Produk 6

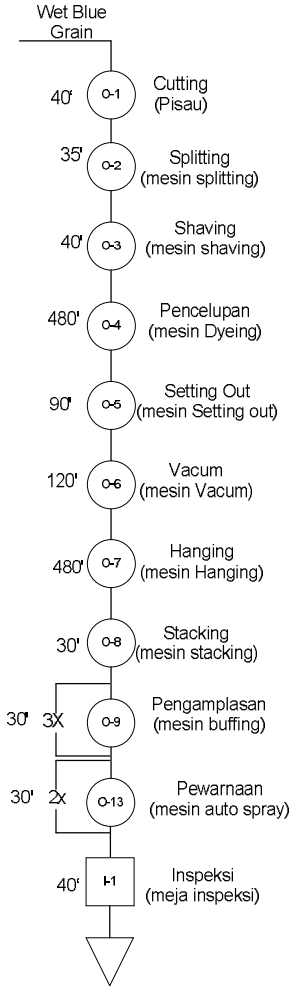


6. Peta Proses Operasi Produk 7

PETA PROSES OPERASI

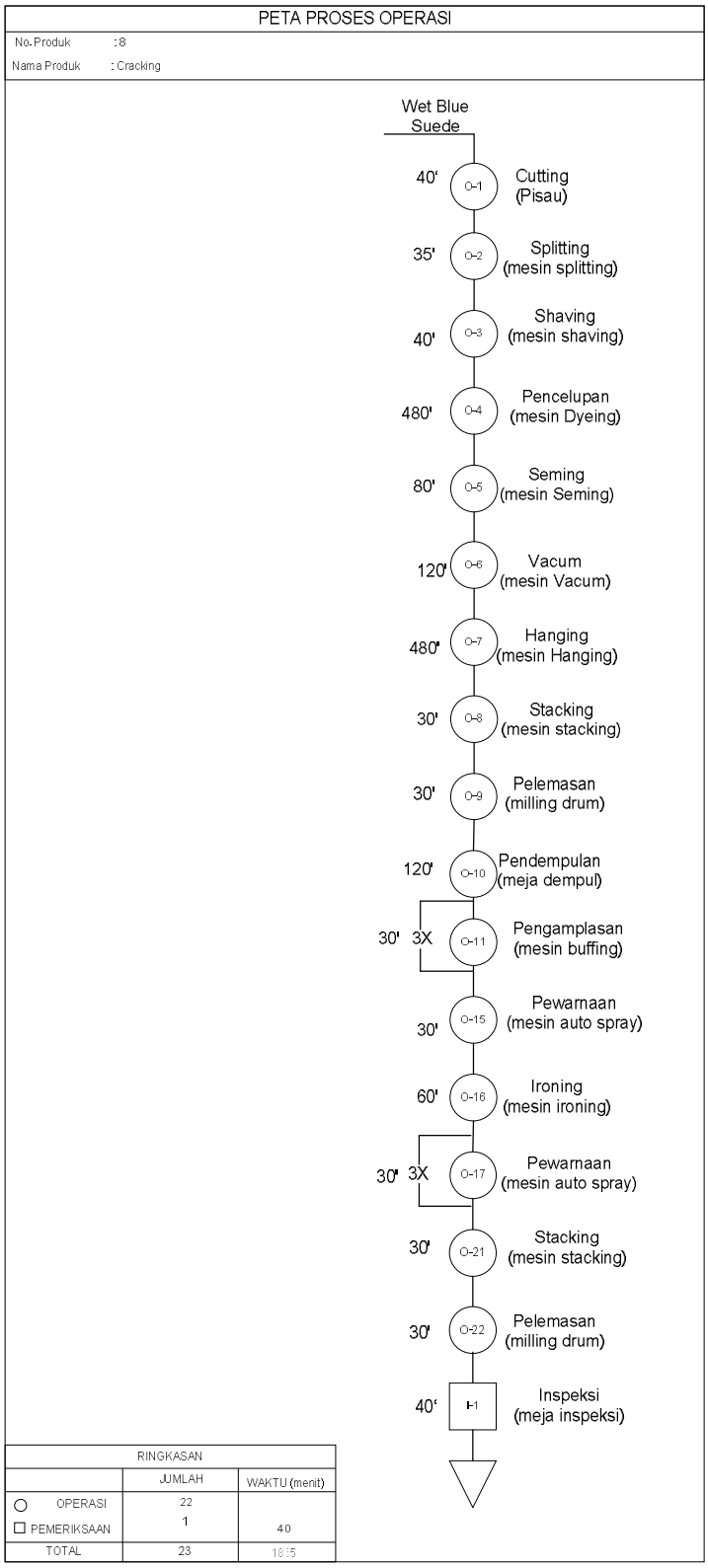
No. Produk : 7

Nama Produk : Nubuck

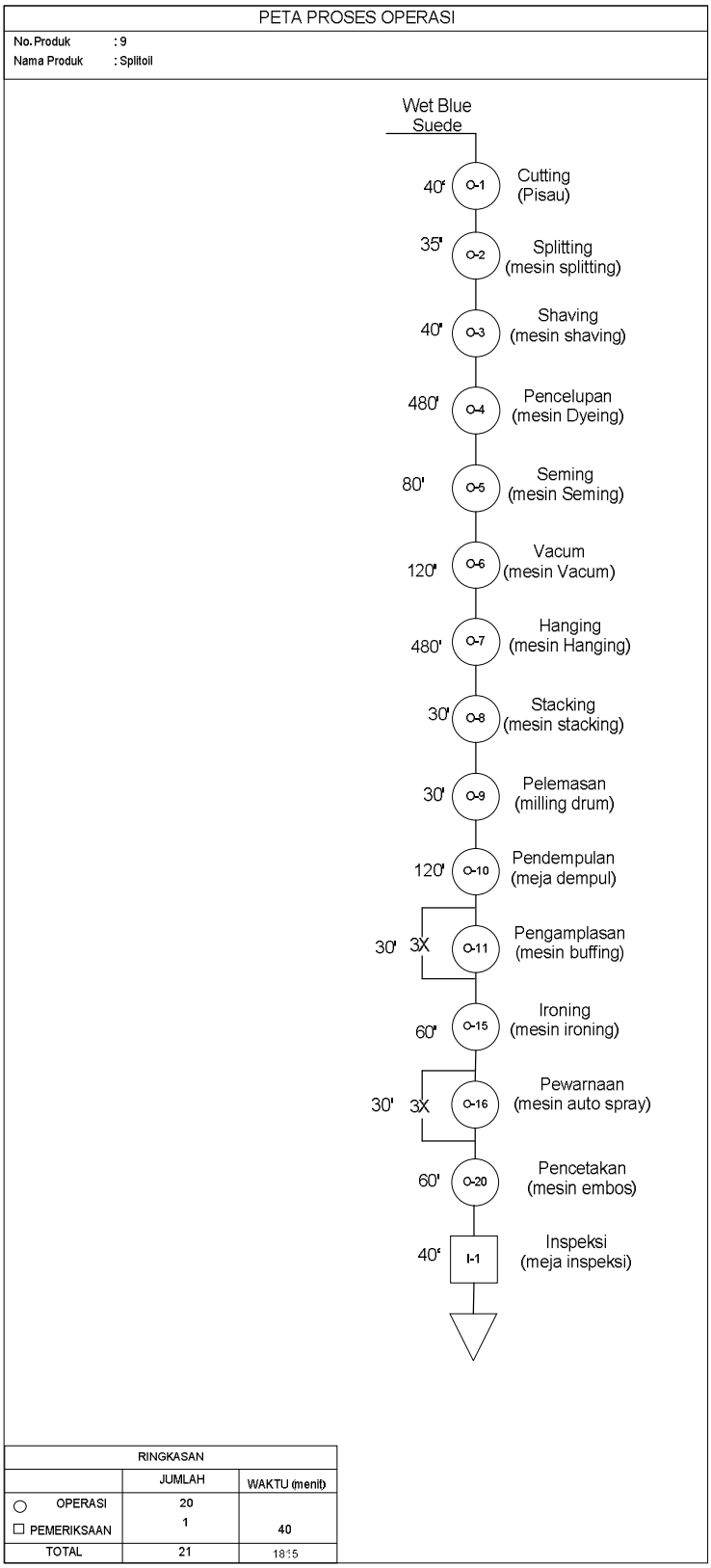


RINGKASAN		
	JUMLAH	WAKTU (menit)
○ OPERASI	15	1525
□ PEMERIKSAAN	1	40
TOTAL	16	

7. Peta Proses Operasi Produk 8



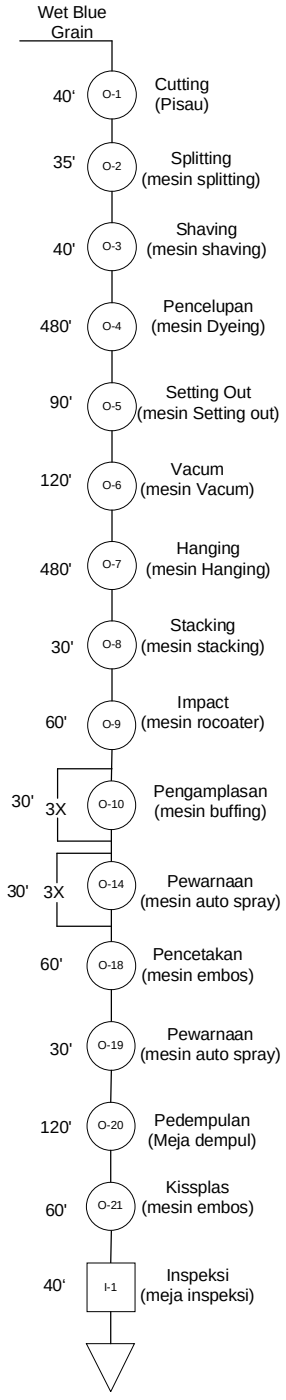
8. Peta Proses Operasi Produk 9



9. Peta Proses Operasi Produk 10

PETA PROSES OPERASI

No. Produk : 10
Nama Produk : Full up two tone



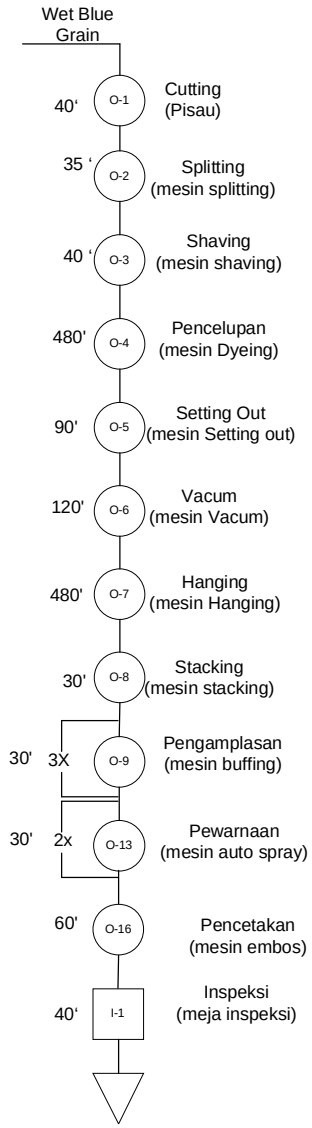
RINGKASAN		
	JUMLAH	WAKTU (DETIK)
○ OPERASI	21	1885
□ PEMERIKSAAN	1	40
TOTAL	22	1925

10. Peta Proses Operasi Produk 11

PETA PROSES OPERASI

No. Produk : 11

Nama Produk : Crayzy horse



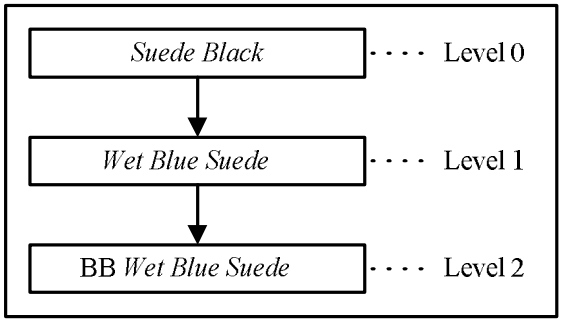
RINGKASAN		
	JUMLAH	WAKTU (menit)
○ OPERASI	16	1585
□ PEMERIKSAAN	1	40
TOTAL	17	1625

LAMPIRAN B

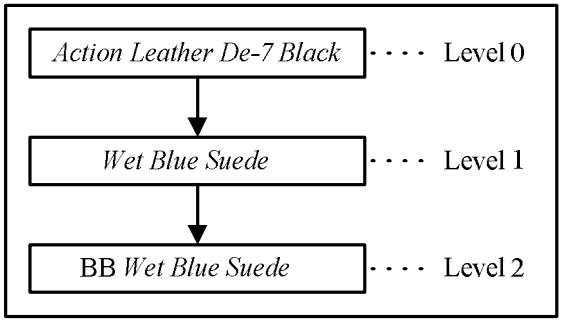
Struktur Produk

Kasus Perusahaan

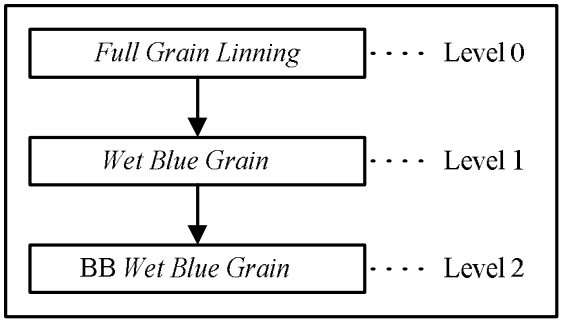
1. **Struktur Produk 2**



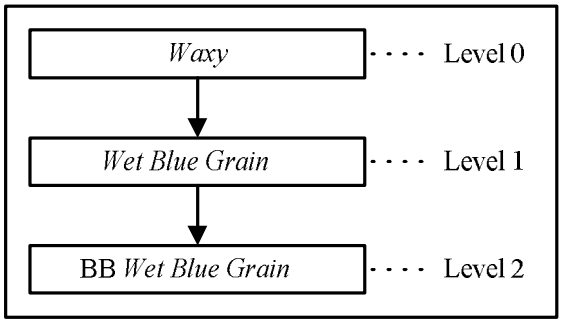
2. **Struktur Produk 3**



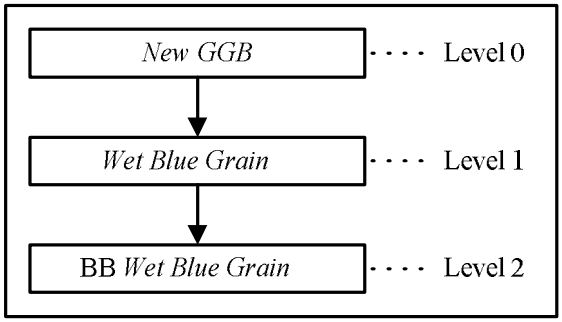
3. **Struktur Produk 4**



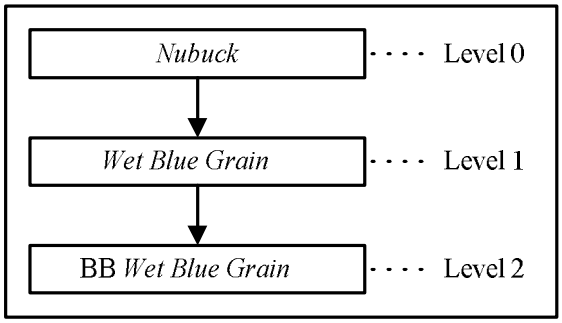
4. **Struktur Produk 5**



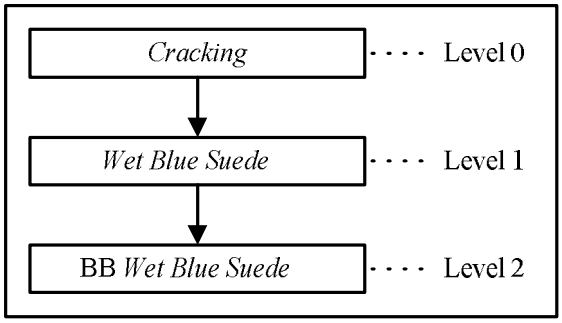
5. Struktur Produk 6



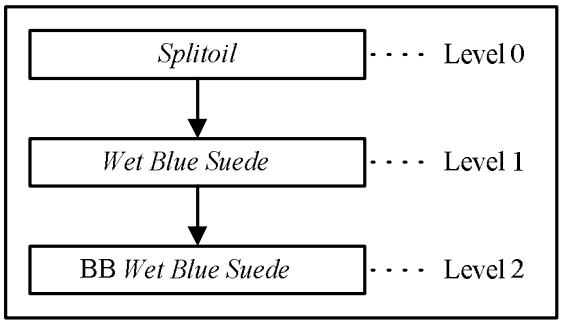
6. Struktur Produk 7



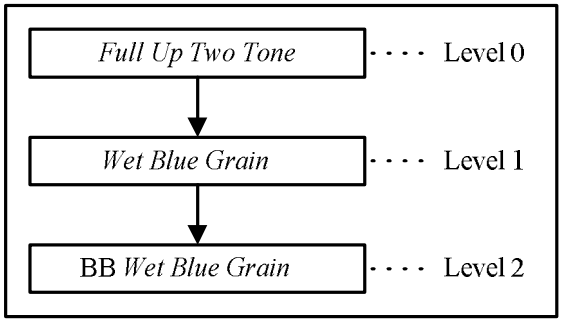
7. Struktur Produk 8



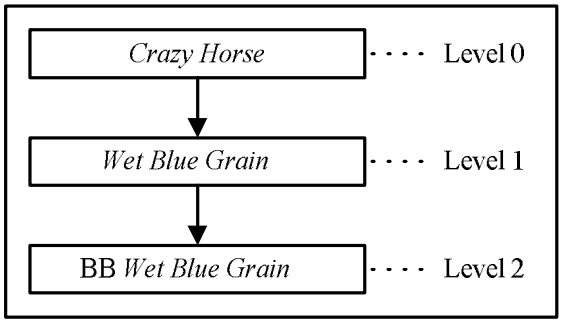
8. Struktur Produk 9



9. Struktur Produk 10



10. Struktur Produk 11



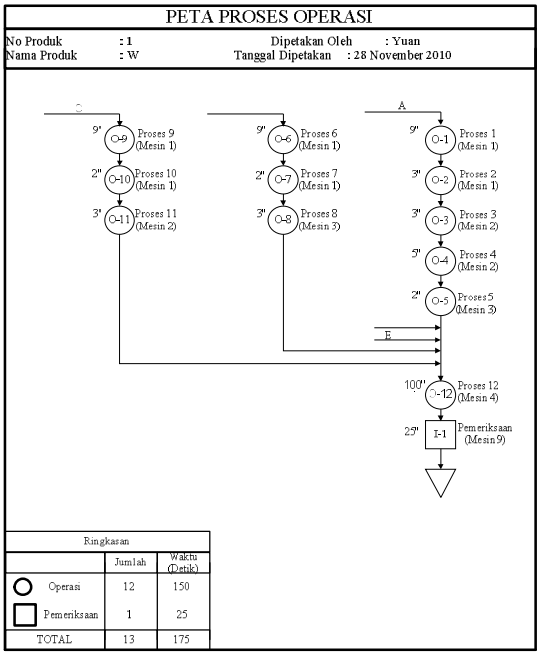
LAMPIRAN C

Data Kasus Sederhana

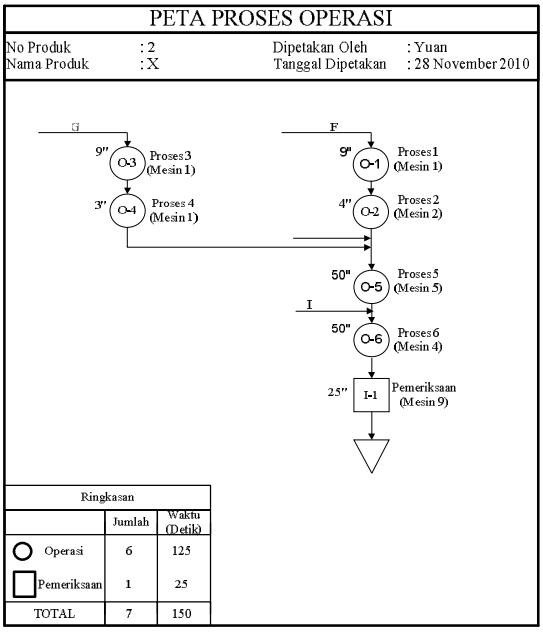
1. Peta Proses Operasi

Peta Proses Operasi adalah suatu diagram yang menggambarkan langkah-langkah proses yang dialami oleh bahan baku yag meliputi urutan proses operasi dan pemeriksaan. Peta proses operasi untuk produk W, X, dan Z dapat dilihat pada Gambar di bawah ini :

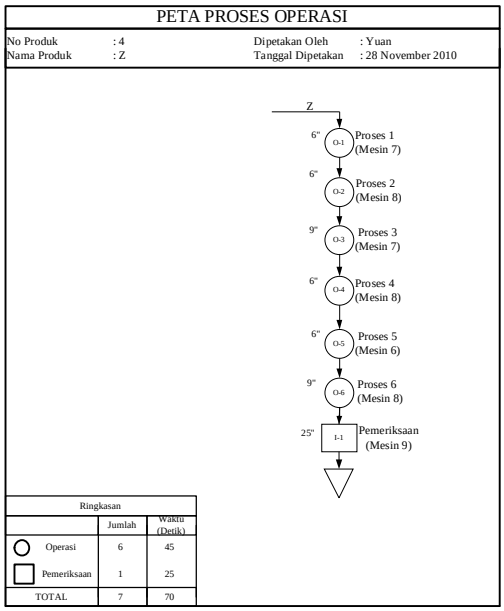
- **PPO Produk W**



- **PPO Produk X**



- **PPO Produk Z**



2. *Routing Sheet*

Routing sheet ini digunakan untuk menghitung jumlah mesin yang diperlukan dan menghitung material yang harus dipersiapkan untuk memperoleh sejumlah produk jadi yang diinginkan. *Routing sheet* untuk produk W, X, dan Z dapat dilihat di bawah ini :

- ***Routing Sheet* Produk W**

ROUTING SHEET

Nomor Produk : 1
Nama Produk : W
Jam Kerja Efektif : 40 jam/minggu = 144000 detik/minggu
Jumlah Produksi : 3600 unit/ming

No	Item	No Operasi	Nama Operasi	Mesin	Waktu Proses (detik)	Kapasitas Mesin (unit/minggu)	Jumlah Mesin (F)
1	A	O-1	Proses 1	Mesin 1	9	16.000	0,225
		O-2	Proses 2	Mesin 1	3	48.000	0,075
		O-3	Proses 3	Mesin 2	3	48.000	0,075
		O-4	Proses 4	Mesin 2	5	28.800	0,125
		O-5	Proses 5	Mesin 3	2	72.000	0,050
2	B	O-6	Proses 6	Mesin 1	9	16.000	0,225
		O-7	Proses 7	Mesin 1	2	72.000	0,050
		O-8	Proses 8	Mesin 2	3	48.000	0,075
3	C	O-9	Proses 9	Mesin 1	9	16.000	0,225
		O-10	Proses 10	Mesin 1	2	72.000	0,050
		O-11	Proses 11	Mesin 3	3	48.000	0,075
4	Perakitan	O-12	Proses 12	Mesin 4	100	1.440	2,500
5	Pemeriksaan	I-1	Pemeriksaan	Mesin 9	25	5.760	0,625

- ***Routing Sheet* Produk X**

ROUTING SHEET							
Nomor Produk : 2 **Nama Produk : X** **Jam Kerja Efektif : 40 jam/minggu = 144000 detik/minggu** **Jumlah Produksi : 4500 unit/ming**							
No	**Item**	**No Operasi**	**Nama Operasi**	**Mesin**	**Waktu Proses (detik)**	**Kapasitas Mesin (unit/minggu)**	**Jumlah Mesin (F)**
1	F	O-1	Proses 1	Mesin 1	9	16.000	0,281
		O-2	Proses 2	Mesin 2	4	36.000	0,125
2	G	O-3	Proses 3	Mesin 1	9	16.000	0,281
		O-4	Proses 4	Mesin 1	3	48.000	0,094
3	Perakitan 1	O-5	Proses 5	Mesin 5	50	2.880	1,563
4	Perakitan 2	O-6	Proses 6	Mesin 4	50	2.880	1,563
5	Pemeriksaan	I-1	Pemeriksaan	Mesin 9	25	5.760	0,781

- ***Routing Sheet* Produk Z**

ROUTING SHEET							
Nomor Produk : 3 **Nama Produk : Z** **Jam Kerja Efektif : 40 jam/minggu = 144000 detik/minggu** **Jumlah Produksi : 4200 unit/ming**							
No	**Item**	**No Operasi**	**Nama Operasi**	**Mesin**	**Waktu Proses (detik)**	**Kapasitas Mesin (unit/minggu)**	**Jumlah Mesin (F)**
1	Z	O-1	Proses 1	Mesin 7	9	16.000	0,263
2		O-2	Proses 2	Mesin 8	6	24.000	0,175
3		O-3	Proses 3	Mesin 7	9	16.000	0,263
4		O-4	Proses 4	Mesin 8	6	24.000	0,175
5		O-5	Proses 5	Mesin 6	6	24.000	0,175
6		O-6	Proses 6	Mesin 8	9	16.000	0,263
7		I-1	Pemeriksaan	Mesin 9	25	5.760	0,729

Contoh Perhitungan (Produk Z, O-1) :

- Kapasitas Mesin (unit/minggu) $= \frac{\text{Jam Kerja Efektif}}{\text{Waktu Proses}} = \frac{144.000 \text{ detik/minggu}}{9 \text{ detik/unit}}$

  $= 16{,}000$ unit/minggu

- Jumlah Mesin $= \frac{\text{Jumlah Produksi(unit/minggu)}}{\text{Kapasitas Mesin(unit/minggu)}} = \frac{4.200 \text{ unit/minggu}}{16.000 \text{ unit/minggu}} = 0{,}263$

3. Jumlah Mesin Keseluruhan

Setelah dilakukan perhitungan pada *routing sheet*, maka dapat dihitung kebutuhan mesin secara keseluruhan. Berikut adalah tabel jumlah mesin secara keseluruhan yang dapat dilihat di bawah ini :

Mesin	**Produk**			**Kebutuhan Mesin**	**Jumlah Disediakan**
	1	**2**	**3**		
Mesin 1	0,850	0,656		1,506	2
Mesin 2	0,275	0,125		0,400	1
Mesin 3	0,125			0,125	1
Mesin 4	2,500	1,563		4,063	5
Mesin 5		1,563		1,563	2
Mesin 6			0,175	0,175	1
Mesin 7			0,525	0,525	1
Mesin 8			0,613	0,613	1
Mesin 9	0,625	0,781	0,729	2,135	3
Jumlah Mesin					17

Contoh Perhitungan (Mesin 1) :

Kebutuhan Mesin 1 = 0,850 + 0,656 = 1,506 ≈ 2. Jadi, jumlah mesin 1 yang dibutuhkan adalah 2 unit.

4. Perhitungan Fraktal

- **Jumlah Fraktal**

  Dari perhitungan jumlah mesin secara keseluruhan, didapat jumlah mesin secara keseluruhan adalah 17 unit, dimana terdapat 7 jenis mesin. Oleh karena itu, jumlah fraktal yang dibentuk adalah $= \frac{\text{Jumlah Mesin}}{\text{Jumlah Jenis Mesin}} = \frac{17}{7} = 1{,}889 \approx 2$ fraktal. Artinya, dari 17 unit mesin tersebut akan dialokasikan ke dalam 2 buah fraktal.

- **Alokasi Mesin Ke Masing-Masing Fraktal**

  Berikut adalah pengalokasian 17 unit mesin ke dalam 2 buah fraktal yang dapat dilihat di bawah ini :

Mesin	Fraktal 1	Fraktal 2
Mesin 1	1	1
Mesin 2	1	
Mesin 3	1	
Mesin 4	3	2
Mesin 5	1	1
Mesin 6		1
Mesin 7		1
Mesin 8		1
Mesin 9	2	1
Jumlah Mesin	**9**	**8**

- **Pembentukkan Fraktal**

  Berikut adalah penyusunan 2 buah fraktal yang dapat dilihat di bawah ini :

Fraktal 1	Fraktal 2

5. Jarak

Berikut adalah jarak antar mesin yang ada pada masing-masing fraktal, yang dapat dilihat di bawah ini :

Dari	Ke	Jarak
0	1-1-1	10
	2-1-1	16
	1-4-1	12
	1-4-2	14
	1-4-3	16
	2-4-1	18
	2-4-2	19
	1-5-1	17
	2-5-1	20
	2-7-1	16
1-1-1	1-2-1	5
	1-3-1	7
	1-5-1	9
	2-5-1	16
2-1-1	1-2-1	12
	1-3-1	10
	1-5-1	20
	2-5-1	5
1-2-1	1-3-1	5
	1-4-1	6
	1-4-2	5
	1-4-3	6
	2-4-1	10
	2-4-2	12
	1-5-1	10
	2-5-1	15
1-3-1	1-4-1	5
	1-4-2	5
	1-4-3	6
	2-4-1	10
	2-4-2	10
1-4-1	1-9-1	6
	1-9-2	6
	2-9-1	7
1-4-2	1-9-1	6
	1-9-2	6
	2-9-1	7
1-4-3	1-9-1	7
	1-9-2	6
	2-9-1	8
2-4-1	1-9-1	10
	1-9-2	10
	2-9-1	5
2-4-2	1-9-1	10
	1-9-2	9
	2-9-1	5
1-5-1	1-4-1	5
	1-4-2	5
	1-4-3	7
	2-4-1	6
	2-4-2	8
2-5-1	1-4-1	9
	1-4-2	9
	1-4-3	5
	2-4-1	5
	2-4-2	10
2-6-1	2-8-1	6
2-7-1	2-8-1	5
2-8-1	2-6-1	6
	2-7-1	5
	1-9-1	5
	1-9-2	5
	2-9-1	9
1-9-1	10	13
1-9-2		11
2-9-1		10

Keterangan :

- 0 = Gudang Bahan Baku
- 10 = Gudang Barang Jadi
- i-j-k = Fraktal – Mesin – Mesin ke-

LAMPIRAN D

Decoding Kasus Sederhana

- ***Decoding* Kromosom 1**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)		OMH (rupiah)	
														Volume	Berat					
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp	1,98	Rp	5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-8-1	1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
		1-9-1	10	13	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp	1,98	Rp	4.169,88
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp	1,98	Rp	891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp	1,98	Rp	336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp	0,42	Rp	281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp	1,98	Rp	198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	136.000	3.600	3.600	Keranjang	13	12	300	Rp	0,42	Rp	882,00
FG1(A1)	A	1-3-1	1-4-1	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp	0,42	Rp	604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp	0,42	Rp	604,80
FG1(A1)	A	1-3-1	1-4-2	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp	0,42	Rp	113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp	0,42	Rp	705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp	0,42	Rp	705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp	0,42	Rp	80,64
	B	1-2-1		6								720	Keranjang	27	28	27	Rp	0,42	Rp	68,04
	C	1-3-1		6								720	Keranjang	13	12	60	Rp	0,42	Rp	151,20
	D	0		16								720	Keranjang	13	12	60	Rp	0,42	Rp	403,20
	E	0		16								720	Keranjang	13	12	60	Rp	0,42	Rp	403,20
FG1(A1)	A	1-3-1	2-4-1	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		10								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		10								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		18								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		18								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		12								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		10								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-1	1-9-1	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-2	1-9-1	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp	0,42	Rp	25,20
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp	0,42	Rp	277,20
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-3	1-9-1	7	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	6	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp	0,42	Rp	151,20
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-9-1	10	13	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp	1,98	Rp	1.750,32
		1-9-2	10	11	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp	1,98	Rp	1.938,42
BB F		0	1-1-1	10	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp	1,98	Rp	574,20
			2-1-1	16	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp	1,98	Rp	792,00
F		1-1-1	1-2-1	5	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp	0,42	Rp	560,70
		2-1-1	1-2-1	12	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp	0,42	Rp	1.175,36
BB G		0	1-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
			2-1-1	16	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp	1,98	Rp	2.977,92
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp	0,42	Rp	1.344,00
	G	2-1-1		20								2.880	Keranjang	30	29	100	Rp	0,42	Rp	840,00
	H	0		17								2.880	Keranjang	23	27	126	Rp	0,42	Rp	899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp	0,42	Rp	1.134,00
	G	2-1-1		5								1.620	Keranjang	30	29	56	Rp	0,42	Rp	117,60
	H	0		20								1.620	Keranjang	23	27	71	Rp	0,42	Rp	596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-1	4	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		12								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		14								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	249,90
	I	0		16								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	214,20
	I	0		18								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		19								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		12								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		14								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		16								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp	0,42	Rp	46,20
	I	0		19								180	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A2)		1-4-3	1-9-1	7	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-2	6	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp	0,42	Rp	166,32
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
		2-4-1	1-9-1	10	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-2	10	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp	0,42	Rp	436,80
			2-9-1	5	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp	0,42	Rp	58,80
		2-4-2	1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	5	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp	0,42	Rp	18,90
FG2(A2)		1-9-2	10	11	infinite	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp	1,98	Rp	1.981,98
		2-9-1	10	10	infinite	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp	1,98	Rp	396,00
TOTAL OMH																			Rp	40.858,32

- ***Decoding* Kromosom 2**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)		OMH (rupiah)	
														Volume	Berat					
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp	1,98	Rp	5.132,16
FG1(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
		1-9-2	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp	1,98	Rp	3.528,36
BB A		0	2-4-1	16	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp	1,98	Rp	1.425,60
			1-4-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
A		2-1-1	1-2-1	12	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	791,28
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
BB B		0	2-4-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp	1,98	Rp	538,56
			1-4-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp	0,42	Rp	675,36
BB C		0	2-4-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp	1,98	Rp	316,80
			1-4-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp	0,42	Rp	1.260,00
FG1(A1)	A	1-3-1	1-4-2	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp	0,42	Rp	113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp	0,42	Rp	705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp	0,42	Rp	705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp	0,42	Rp	134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp	0,42	Rp	113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp	0,42	Rp	252,00
	D	0		18								720	Keranjang	13	12	60	Rp	0,42	Rp	453,60
	E	0		18								720	Keranjang	13	12	60	Rp	0,42	Rp	453,60
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		12								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		10								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		6								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-2	1-9-2	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-3	1-9-2	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp	0,42	Rp	25,20
			2-9-1	8	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp	0,42	Rp	369,60
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-1	1-9-2	10	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			2-9-1	5	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp	0,42	Rp	126,00
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-9-2	10	11	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp	1,98	Rp	1.481,04
		2-9-1	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp	1,98	Rp	1.782,20
BB F		0	2-4-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp	1,98	Rp	918,72
			1-4-1	10	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp	1,98	Rp	495,00
F		2-1-1	1-2-1	12	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp	0,42	Rp	1.345,68
		1-1-1	1-2-1	5	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp	0,42	Rp	491,40
BB G		0	2-4-1	16	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
			1-4-1	10	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp	1,98	Rp	1.861,20
FG2(A1)	F	1-2-1	2-6-1	15	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp	0,42	Rp	2.016,00
	G	1-1-1		16								2.880	Keranjang	30	29	100	Rp	0,42	Rp	672,00
	H	0		20								2.880	Keranjang	23	27	126	Rp	0,42	Rp	1.058,40
FG2(A1)	F	1-2-1	1-6-1	10	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp	0,42	Rp	756,00
	G	1-1-1		9								1.620	Keranjang	30	29	56	Rp	0,42	Rp	211,68
	H	0		17								1.620	Keranjang	23	27	71	Rp	0,42	Rp	306,94
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		14								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		16								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	357,00
	I	0		19								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		12								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		14								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		16								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp	0,42	Rp	-
	I	0		18								0	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp	0,42	Rp	23,10
	I	0		12								180	Keranjang	23	17	0	Rp	0,42	Rp	-
FG2(A2)		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp	0,42	Rp	138,60
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
		2-4-2	1-9-2	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp	0,42	Rp	218,40
			1-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp	0,42	Rp	117,60
		1-4-1	1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp	0,42	Rp	22,68
FG2(A2)		2-9-1	10	10	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp	1,98	Rp	1.801,80
		1-9-1	10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp	1,98	Rp	514,80
TOTAL OMH																			Rp	41.935,86

- ***Decoding* Kromosom 3**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)		OMH (rupiah)	
														Volume	Berat					
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp	1,98	Rp	5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-8-1	2-9-1	9	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	1.224,72
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
		2-9-1	10	10	infinite	4.200	-	-	0	infinite	4.200	4.200	Pallet	30	26	162	Rp	1,98	Rp	3.207,60
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp	1,98	Rp	891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp	1,98	Rp	336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp	0,42	Rp	281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp	1,98	Rp	198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp	0,42	Rp	882,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	264,60
	B	1-2-1		10								1.440	Keranjang	27	28	54	Rp	0,42	Rp	226,80
	C	1-3-1		10								1.440	Keranjang	13	12	120	Rp	0,42	Rp	504,00
	D	0		18								1.440	Keranjang	13	12	120	Rp	0,42	Rp	907,20
	E	0		18								1.440	Keranjang	13	12	120	Rp	0,42	Rp	907,20
FG1(A1)	A	1-3-1	2-4-2	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp	0,42	Rp	134,40
	B	1-2-1		12								720	Keranjang	27	28	27	Rp	0,42	Rp	136,08
	C	1-3-1		10								720	Keranjang	13	12	60	Rp	0,42	Rp	252,00
	D	0		19								720	Keranjang	13	12	60	Rp	0,42	Rp	478,80
	E	0		19								720	Keranjang	13	12	60	Rp	0,42	Rp	478,80
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		6								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		5								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-3	2-9-1	8	144.000	1.440	25	5.760	0	108.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	403,20
			1-9-1	7	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-1	2-9-1	5	108.000	1.440	25	4.320	0	72.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
			1-9-1	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-2	2-9-1	5	72.000	720	25	2.880	0	54.000	720	720	Keranjang	13	12	60	Rp	0,42	Rp	126,00
			1-9-1	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-9-1	10	10	infinite	3.600	-	-	0	infinite	3.600	3.600	Pallet	24	23	157	Rp	1,98	Rp	3.108,60
BB F		0	1-1-1	10	100.800	4.500	9	11.200	0	60.300	4.500	53	Pallet	1	1	53	Rp	1,98	Rp	1.049,40
			2-1-1	16	144.000	0	9	16.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
F		1-1-1	1-2-1	5	104.400	4.500	4	26.100	0	86.400	4.500	4.500	Keranjang	9	11	500	Rp	0,42	Rp	1.050,00
BB G		0	1-1-1	10	60.300	4.500	12	5.025	0	6.300	4.500	94	Pallet	1	1	94	Rp	1,98	Rp	1.861,20
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp	0,42	Rp	1.344,00
	G	1-1-1		9								2.880	Keranjang	30	29	100	Rp	0,42	Rp	378,00
	H	0		17								2.880	Keranjang	23	27	126	Rp	0,42	Rp	899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp	0,42	Rp	1.134,00
	G	1-1-1		16								1.620	Keranjang	30	29	56	Rp	0,42	Rp	376,32
	H	0		20								1.620	Keranjang	23	27	71	Rp	0,42	Rp	596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	144.000	2.880	50	2.880	0	0	2.880	2.880	Keranjang	23	17	170	Rp	0,42	Rp	499,80
	I	0		16								2.880	Keranjang	23	17	170	Rp	0,42	Rp	1.142,40
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	178,50
	I	0		18								1.440	Keranjang	23	17	85	Rp	0,42	Rp	642,60
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp	0,42	Rp	46,20
	I	0		19								180	Keranjang	23	17	11	Rp	0,42	Rp	87,78
FG2(A2)		1-4-3	2-9-1	8	39.000	2.880	25	1.560	1.320	0	1.560	1.560	Keranjang	22	22	71	Rp	0,42	Rp	238,56
			1-9-1	7	54.000	1.320	25	2.160	0	21.000	1.320	1.320	Keranjang	22	22	60	Rp	0,42	Rp	176,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
		2-4-1	2-9-1	5	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	10	21.000	1.440	25	840	600	0	840	840	Keranjang	22	22	39	Rp	0,42	Rp	163,80
			1-9-2	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp	0,42	Rp	117,60
		2-4-2	2-9-1	5	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-2	9	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp	0,42	Rp	3,02
FG2(A2)		2-9-1	10	10	infinite	1.560	-	-	0	infinite	1.560	1.560	Pallet	41	42	39	Rp	1,98	Rp	772,20
		1-9-1	10	13	infinite	2.160	-	-	0	infinite	2.160	2.160	Pallet	41	42	53	Rp	1,98	Rp	1.364,22
		1-9-2	10	11	infinite	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp	1,98	Rp	455,60
TOTAL OMH																			Rp	41.465,40

- ***Decoding* Kromosom 4**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)		OMH (rupiah)	
														Volume	Berat					
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp	1,98	Rp	5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
		1-9-2	10	11	infinite	4.200	-	-	0	infinite	4.200	4.200	Pallet	30	26	162	Rp	1,98	Rp	3.528,36
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp	1,98	Rp	891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp	1,98	Rp	538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp	0,42	Rp	675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp	1,98	Rp	316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp	0,42	Rp	1.260,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
FG1(A1)	A	1-3-1	1-4-1	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp	0,42	Rp	604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp	0,42	Rp	604,80
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp	0,42	Rp	134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp	0,42	Rp	113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp	0,42	Rp	252,00
	D	0		18								720	Keranjang	13	12	60	Rp	0,42	Rp	453,60
	E	0		18								720	Keranjang	13	12	60	Rp	0,42	Rp	453,60
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		5								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		12								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		10								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		19								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-3	2-9-1	8	144.000	1.440	25	5.760	0	108.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	403,20
			1-9-2	6	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-1	2-9-1	7	108.000	1.440	25	4.320	0	72.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	352,80
			1-9-2	6	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-1	2-9-1	5	72.000	720	25	2.880	0	54.000	720	720	Keranjang	13	12	60	Rp	0,42	Rp	126,00
			1-9-2	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-9-1	10	10	infinite	3.600	-	-	0	infinite	3.600	3.600	Pallet	24	23	157	Rp	1,98	Rp	3.108,60
BB F		0	1-1-1	10	100.800	4.500	9	11.200	0	60.300	4.500	53	Pallet	1	1	53	Rp	1,98	Rp	1.049,40
			2-1-1	16	144.000	0	9	16.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
F		1-1-1	1-2-1	5	104.400	4.500	4	26.100	0	86.400	4.500	4.500	Keranjang	9	11	500	Rp	0,42	Rp	1.050,00
BB G		0	2-1-1	16	60.300	4.500	12	5.025	0	6.300	4.500	94	Pallet	1	1	94	Rp	1,98	Rp	2.977,92
			1-1-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp	0,42	Rp	1.344,00
	G	2-1-1		20								2.880	Keranjang	30	29	100	Rp	0,42	Rp	840,00
	H	0		17								2.880	Keranjang	23	27	126	Rp	0,42	Rp	899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp	0,42	Rp	1.134,00
	G	2-1-1		5								1.620	Keranjang	30	29	56	Rp	0,42	Rp	117,60
	H	0		20								1.620	Keranjang	23	27	71	Rp	0,42	Rp	396,40
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	144.000	2.880	50	2.880	0	0	2.880	2.880	Keranjang	23	17	170	Rp	0,42	Rp	357,00
	J	0		14								2.880	Keranjang	23	17	170	Rp	0,42	Rp	999,60
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	178,50
	I	0		18								1.440	Keranjang	23	17	85	Rp	0,42	Rp	642,60
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp	0,42	Rp	46,20
	I	0		19								180	Keranjang	23	17	11	Rp	0,42	Rp	87,78
FG2(A2)		1-4-2	1-9-2	6	39.000	2.880	25	1.560	1.320	0	1.560	1.560	Keranjang	22	22	71	Rp	0,42	Rp	178,92
			2-9-1	7	54.000	1.320	25	2.160	0	21.000	1.320	1.320	Keranjang	22	22	60	Rp	0,42	Rp	176,40
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	5	21.000	1.440	25	840	600	0	840	840	Keranjang	22	22	39	Rp	0,42	Rp	81,90
			1-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp	0,42	Rp	117,60
		2-4-2	1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			2-9-1	5	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	10	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp	0,42	Rp	37,80
FG2(A2)		1-9-2	10	11	infinite	1.560	-	-	0	infinite	1.560	1.560	Pallet	41	42	39	Rp	1,98	Rp	849,42
		2-9-1	10	10	infinite	2.160	-	-	0	infinite	2.160	2.160	Pallet	41	42	53	Rp	1,98	Rp	1.049,40
		1-9-1	10	13	infinite	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp	1,98	Rp	514,80
TOTAL OMH																			Rp	42.020,70

- ***Decoding* Kromosom *Offspring Crossover* 1**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
			1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-1	10	13	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 4.169,88
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 1,98	Rp 1.554,30
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 1,98	Rp 1.554,30
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 201,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	136.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 882,00
FG1(A1)	A	1-3-1	14-1	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
FG1(A1)	A	1-3-1	14-2	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	14-3	6	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 80,64
	B	1-2-1		6								720	Keranjang	27	28	27	Rp 0,42	Rp 68,04
	C	1-3-1		6								720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
	D	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
	E	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
FG1(A1)	A	1-3-1	24-1	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		10								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	24-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	1-9-1	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-1	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 277,20
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-1	7	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	6	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-1	10	13	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.750,32
		1-9-2	10	11	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.938,42
BB F		0	1-1-1	10	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 574,20
			2-1-1	16	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 792,00
F		1-1-1	1-2-1	5	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 560,70
		2-1-1	1-2-1	12	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 1.179,36
BB G		0	2-1-1	16	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			1-1-1	10	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.861,20
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 1.344,00
	G	1-1-1		9								2.880	Keranjang	30	29	100	Rp 0,42	Rp 378,00
	H	0		17								2.880	Keranjang	23	27	126	Rp 0,42	Rp 899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.134,00
	G	1-1-1		16								1.620	Keranjang	30	29	56	Rp 0,42	Rp 376,32
	H	0		20								1.620	Keranjang	23	27	71	Rp 0,42	Rp 596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 249,90
	I	0		16								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	6	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 46,20
	I	0		19								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-4-3	1-9-1	7	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 166,32
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-1	1-9-1	10	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	10	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 436,80
			2-9-1	5	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 58,80
		2-4-2	1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 18,90
FG2(A2)		1-9-2	10	11	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.981,98
		2-9-1	10	10	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 396,00
TOTAL OMH																		Rp 42.023,22

- ***Decoding* Kromosom *Offspring Crossover* 2**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost	OMH
														Volume	Berat		(rupiah)	(rupiah)
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		2-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-2	10	11	infinite	4.200	-	-	0	infinite	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.520,26
BB A		0	2-1-1	16	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 1.425,60
			1-1-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		2-1-1	1-2-1	12	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 791,28
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	1-4-2	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		6								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-2	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-2	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			2-9-1	8	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 369,60
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	1-9-2	10	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	5	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 126,00
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-2	10	11	infinite	1.560	-	-	0	infinite	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.481,04
		2-9-1	10	10	infinite	2.040	-	-	0	infinite	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	2-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			1-1-1	10	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 495,00
F		2-1-1	1-2-1	12	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.345,68
		1-1-1	1-2-1	5	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 491,40
BB G		0	1-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			2-1-1	16	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 2.977,92
FG2(A1)	F	1-2-1	2-5-1	15	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.016,00
	G	2-1-1		5								2.880	Keranjang	30	29	100	Rp 0,42	Rp 210,00
	H	0		20								2.880	Keranjang	23	27	126	Rp 0,42	Rp 1.058,40
FG2(A1)	F	1-2-1	1-5-1	10	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 756,00
	G	2-1-1		20								1.620	Keranjang	30	29	56	Rp 0,42	Rp 470,40
	H	0		17								1.620	Keranjang	23	27	71	Rp 0,42	Rp 506,94
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 357,00
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 138,60
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-2	1-9-2	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 218,40
			1-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		1-4-1	1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 22,68
FG2(A2)		2-9-1	1-0	10	infinite	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.801,80
		1-9-1	1-0	13	infinite	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		Rp **42.849,30**

- ***Decoding* Kromosom *Offspring Crossover* 3**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)		OMH (rupiah)	
														Volume	Berat					
BB Z		0	2-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp	1,98	Rp	5.132,16
FG3(A1)		2-7-1	2-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-7-1	2-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	680,40
		2-8-1	2-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-6-1	2-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	816,48
		2-8-1	2-9-1	9	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp	0,42	Rp	1.224,72
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp	0,42	Rp	-
		2-9-1		10	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp	1,98	Rp	3.207,60
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp	1,98	Rp	891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp	0,42	Rp	329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp	1,98	Rp	336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp	0,42	Rp	281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp	1,98	Rp	198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp	1,98	Rp	-
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp	0,42	Rp	882,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp	0,42	Rp	136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp	0,42	Rp	302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp	0,42	Rp	806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp	0,42	Rp	264,60
	B	1-2-1		10								1.440	Keranjang	27	28	54	Rp	0,42	Rp	226,80
	C	1-3-1		10								1.440	Keranjang	13	12	120	Rp	0,42	Rp	504,00
	D	0		18								1.440	Keranjang	13	12	120	Rp	0,42	Rp	907,20
	E	0		18								1.440	Keranjang	13	12	120	Rp	0,42	Rp	907,20
FG1(A1)	A	1-3-1	2-4-2	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp	0,42	Rp	134,40
	B	1-2-1		12								720	Keranjang	27	28	27	Rp	0,42	Rp	136,08
	C	1-3-1		10								720	Keranjang	13	12	60	Rp	0,42	Rp	252,00
	D	0		19								720	Keranjang	13	12	60	Rp	0,42	Rp	478,80
	E	0		19								720	Keranjang	13	12	60	Rp	0,42	Rp	478,80
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		6								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		12								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp	0,42	Rp	-
	B	1-2-1		5								0	Keranjang	27	28	0	Rp	0,42	Rp	-
	C	1-3-1		5								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	D	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
	E	0		14								0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		1-4-3	2-9-1	8	144.000	1.440	25	5.760	0	108.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	403,20
			1-9-1	7	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-1	2-9-1	5	108.000	1.440	25	4.320	0	72.000	1.440	1.440	Keranjang	13	12	120	Rp	0,42	Rp	252,00
			1-9-1	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-4-2	2-9-1	5	72.000	720	25	2.880	0	54.000	720	720	Keranjang	13	12	60	Rp	0,42	Rp	126,00
			1-9-1	10	39.000	0	25	1.560	0	39.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
			1-9-2	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp	0,42	Rp	-
FG1(A1)		2-9-1		10	*infinite*	3.600	-	-	0	*infinite*	3.600	3.600	Pallet	24	23	157	Rp	1,98	Rp	3.108,60
BB F		0	1-1-1	10	100.800	4.500	9	11.200	0	60.300	4.500	53	Pallet	1	1	53	Rp	1,98	Rp	1.049,40
			2-1-1	16	144.000	0	9	16.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
F		1-1-1	1-2-1	5	104.400	4.500	4	26.100	0	86.400	4.500	4.500	Keranjang	9	11	500	Rp	0,42	Rp	1.050,00
BB G		0	2-1-1	16	60.300	4.500	12	5.025	0	6.300	4.500	94	Pallet	1	1	94	Rp	1,98	Rp	2.977,92
			1-1-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp	1,98	Rp	-
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp	0,42	Rp	1.344,00
	G	2-1-1		20								2.880	Keranjang	30	29	100	Rp	0,42	Rp	840,00
	H	0		17								2.880	Keranjang	23	27	126	Rp	0,42	Rp	859,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp	0,42	Rp	1.134,00
	G	2-1-1		5								1.620	Keranjang	30	29	56	Rp	0,42	Rp	117,60
	H	0		20								1.620	Keranjang	23	27	71	Rp	0,42	Rp	596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	144.000	2.880	50	2.880	0	0	2.880	2.880	Keranjang	23	17	170	Rp	0,42	Rp	499,80
	I	0		16								2.880	Keranjang	23	17	170	Rp	0,42	Rp	1.142,40
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp	0,42	Rp	178,50
	I	0		18								1.440	Keranjang	23	17	85	Rp	0,42	Rp	642,60
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp	0,42	Rp	46,20
	I	0		19								180	Keranjang	23	17	11	Rp	0,42	Rp	87,78
FG2(A2)		1-4-3	2-9-1	8	39.000	2.880	25	1.560	1.320	0	1.560	1.560	Keranjang	22	22	71	Rp	0,42	Rp	238,56
			1-9-1	7	54.000	1.320	25	2.160	0	21.000	1.320	1.320	Keranjang	22	22	60	Rp	0,42	Rp	176,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
		2-4-1	2-9-1	5	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	10	21.000	1.440	25	840	600	0	840	840	Keranjang	22	22	39	Rp	0,42	Rp	163,80
			1-9-2	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp	0,42	Rp	117,60
		2-4-2	2-9-1	5	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp	0,42	Rp	-
			1-9-2	9	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp	0,42	Rp	34,02
FG2(A2)		2-9-1		10	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	41	42	39	Rp	1,98	Rp	772,20
		1-9-1		10	13	*infinite*	2.160	-	-	0	*infinite*	2.160	2.160	Pallet	41	42	53	Rp	1,98	Rp	1.364,22
		1-9-2		10	11	*infinite*	780	-	-	0	*infinite*	780	780	Pallet	41	42	20	Rp	1,98	Rp	435,60
TOTAL OMH																			**Rp**	**42.765,48**

- ***Decoding* Kromosom *Offspring* Mutasi 1**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost	OMH
														Volume	Berat		(rupiah)	(rupiah)
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-1	10	13	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 4.169,88
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 882,00
FG1(A1)	A	1-3-1	1-4-1	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
FG1(A1)	A	1-3-1	1-4-2	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 80,64
	B	1-2-1		6								720	Keranjang	27	28	27	Rp 0,42	Rp 68,04
	C	1-3-1		6								720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
	D	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
	E	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
FG1(A1)	A	1-3-1	2-4-1	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		10								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	1-9-1	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-1	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 277,20
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-1	7	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	6	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-1	10	13	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.750,32
		1-9-2	10	11	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.938,42
BB F		0	1-1-1	10	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 574,20
			2-1-1	16	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 792,00
F		1-1-1	1-2-1	5	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 560,70
		2-1-1	1-2-1	12	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 1.179,36
BB G		0	1-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			2-1-1	16	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 2.977,92
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 1.344,00
	G	2-1-1		20								2.880	Keranjang	30	29	100	Rp 0,42	Rp 840,00
	H	0		17								2.880	Keranjang	23	27	126	Rp 0,42	Rp 899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.134,00
	G	2-1-1		5								1.620	Keranjang	30	29	56	Rp 0,42	Rp 117,60
	H	0		20								1.620	Keranjang	23	27	71	Rp 0,42	Rp 596,40
FG2(A1)	FG2(A1)	1-5-1	1-4-1	4	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 249,90
	I	0		16								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 46,20
	I	0		19								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-4-3	1-9-1	7	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 166,32
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-1	1-9-1	10	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	10	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 436,80
			2-9-1	5	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 58,80
		2-4-2	1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 18,90
FG2(A2)		1-9-2	10	11	infinite	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.981,98
		2-9-1	10	10	infinite	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 396,00
TOTAL OMH																		**Rp 40.858,32**

- ***Decoding* Kromosom *Offspring* Mutasi 2**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-2	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.528,36
BB A		0	2-1-1	16	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 1.425,60
			1-1-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		2-1-1	1-2-1	12	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 791,28
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	1-4-2	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		6								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-2	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-2	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			2-9-1	8	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 369,60
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	1-9-2	10	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	5	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 126,00
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-2	10	11	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.481,04
		2-9-1	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	1-1-1	10	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 574,20
			2-1-1	16	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 792,00
F		1-1-1	1-2-1	12	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.345,68
		2-1-1	1-2-1	5	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 491,40
BB G		0	2-1-1	16	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			1-1-1	10	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.861,20
FG2(A1)	F	1-2-1	2-5-1	15	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.016,00
	G	1-1-1		16								2.880	Keranjang	30	29	100	Rp 0,42	Rp 672,00
	H	0		20								2.880	Keranjang	23	27	126	Rp 0,42	Rp 1.058,40
FG2(A1)	F	1-2-1	1-5-1	10	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 756,00
	G	1-1-1		9								1.620	Keranjang	30	29	56	Rp 0,42	Rp 211,68
	H	0		17								1.620	Keranjang	23	27	71	Rp 0,42	Rp 506,94
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 357,00
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 138,60
			2-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-2	1-9-2	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 218,40
			2-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		1-4-1	1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 22,68
FG2(A2)		1-9-1	10	10	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.801,80
		2-9-1	10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		**Rp 41.888,34**

- ***Decoding* Kromosom *Offspring* Mutasi 3**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH Volume	Kapasitas MH Berat	Frekuensi Terpilih	Cost (rupiah)	OMH (rupiah)
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	2-9-1	9	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 1.224,72
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		2-9-1	10	10	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.207,60
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			1-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 882,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 264,60
	B	1-2-1		10								1.440	Keranjang	27	28	54	Rp 0,42	Rp 226,80
	C	1-3-1		10								1.440	Keranjang	13	12	120	Rp 0,42	Rp 504,00
	D	0		18								1.440	Keranjang	13	12	120	Rp 0,42	Rp 907,20
	E	0		18								1.440	Keranjang	13	12	120	Rp 0,42	Rp 907,20
FG1(A1)	A	1-3-1	2-4-2	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		12								720	Keranjang	27	28	27	Rp 0,42	Rp 136,08
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		19								720	Keranjang	13	12	60	Rp 0,42	Rp 478,80
	E	0		19								720	Keranjang	13	12	60	Rp 0,42	Rp 478,80
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		6								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		5								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	2-9-1	8	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 403,20
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	2-9-1	5	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 21,00
			1-9-1	10	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 462,00
			1-9-2	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-2	2-9-1	5	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	10	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
			1-9-2	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-9-1	10	10	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.346,40
		1-9-1	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	1-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			2-1-1	5	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 247,50
F		1-1-1	1-2-1	10	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.121,40
		2-1-1	1-2-1	16	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 1.572,48
BB G		0	1-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			2-1-1	9	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.675,08
FG2(A1)	F	1-2-1	1-5-1	17	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.284,80
	G	2-1-1		15								2.880	Keranjang	30	29	100	Rp 0,42	Rp 630,00
	H	0		16								2.880	Keranjang	23	27	126	Rp 0,42	Rp 846,72
FG2(A1)	F	1-2-1	2-5-1	20	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.512,00
	G	2-1-1		7								1.620	Keranjang	30	29	56	Rp 0,42	Rp 164,64
	H	0		16								1.620	Keranjang	23	27	71	Rp 0,42	Rp 477,12
FG2(A1)	FG2(A1)	1-5-1	1-4-3	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	10	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		7								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		5								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	10	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	13	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		11								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		2-4-2	2-9-1	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 138,60
			1-9-2	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		1-4-1	2-9-1	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 218,40
			1-9-2	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		1-4-2	2-9-1	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 22,68
FG2(A2)		1-9-1	10	10	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.801,80
		1-9-2	10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		**Rp 42.306,60**

- ***Decoding* Kromosom *Offspring* Mutasi 4**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-1	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.528,36
BB A		0	2-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			1-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		2-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		1-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	1-4-1	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
FG1(A1)	A	1-3-1	1-4-3	6	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		5								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	1-9-1	8	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 403,20
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-1	7	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 29,40
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 277,20
			2-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	1-9-1	5	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	10	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
			2-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-1	10	10	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.346,40
		1-9-2	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	2-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			1-1-1	5	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 247,50
F		2-1-1	1-2-1	16	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.794,24
		1-1-1	1-2-1	10	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 982,80
BB G		0	2-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			1-1-1	20	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 3.722,40
FG2(A1)	F	1-2-1	2-5-1	17	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.284,80
	G	1-1-1		15								2.880	Keranjang	30	29	100	Rp 0,42	Rp 630,00
	H	0		5								2.880	Keranjang	23	27	126	Rp 0,42	Rp 264,60
FG2(A1)	F	1-2-1	1-5-1	20	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.512,00
	G	1-1-1		5								1.620	Keranjang	30	29	56	Rp 0,42	Rp 117,60
	H	0		14								1.620	Keranjang	23	27	71	Rp 0,42	Rp 417,48
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	6	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		7								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		10								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		5								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	10	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		11								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	10	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		13								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-4-1	1-9-1	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 138,60
			2-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		1-4-2	1-9-1	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 218,40
			2-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		1-4-3	1-9-1	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 22,68
FG2(A2)		1-9-2	10	10	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.801,80
		2-9-1	10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		**Rp 43.014,78**

- ***Decoding* Kromosom *Offspring* Mutasi 5**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-1	10	13	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 4.169,88
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 882,00
FG1(A1)	A	1-3-1	1-4-1	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
FG1(A1)	A	1-3-1	1-4-2	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 80,64
	B	1-2-1		6								720	Keranjang	27	28	27	Rp 0,42	Rp 68,04
	C	1-3-1		6								720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
	D	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
	E	0		16								720	Keranjang	13	12	60	Rp 0,42	Rp 403,20
FG1(A1)	A	1-3-1	2-4-1	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		10								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		18								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	1-9-1	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-1	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 277,20
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-1	7	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	6	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 151,20
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-1	10	13	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.750,32
		1-9-2	10	11	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.938,42
BB F		0	1-1-1	10	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 574,20
			2-1-1	16	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 792,00
F		1-1-1	1-2-1	5	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 1,98	Rp 2.643,30
		2-1-1	1-2-1	12	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 1,98	Rp 5.559,84
BB G		0	1-1-1	16	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			2-1-1	10	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.861,20
FG2(A1)	F	1-2-1	1-5-1	10	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 1.344,00
	G	2-1-1		9								2.880	Keranjang	30	29	100	Rp 0,42	Rp 378,00
	H	0		17								2.880	Keranjang	23	27	126	Rp 0,42	Rp 899,64
FG2(A1)	F	1-2-1	2-5-1	15	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.134,00
	G	2-1-1		16								1.620	Keranjang	30	29	56	Rp 0,42	Rp 376,32
	H	0		20								1.620	Keranjang	23	27	71	Rp 0,42	Rp 596,40
FG2(A1)	FG2(A1) I	1-5-1	1-4-2	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	1-5-1	1-4-1	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	1-5-1	1-4-3	7	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 249,90
		0		16								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	1-5-1	2-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
		0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	1-5-1	2-4-2	8	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	2-5-1	1-4-2	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	2-5-1	1-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
		0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	2-5-1	2-4-1	6	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
		0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1) I	2-5-1	2-4-2	10	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 46,20
		0		19								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-4-3	1-9-2	6	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	7	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 194,04
			2-9-1	8	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-1	1-9-2	10	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	10	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 436,80
			2-9-1	5	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 58,80
		2-4-2	1-9-2	9	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	10	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 18,90
FG2(A2)		1-9-1	10	13	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 2.342,34
		2-9-1	10	10	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 396,00
TOTAL OMH																		**Rp 46.425,18**

- ***Decoding* Kromosom *Offspring* Mutasi 6**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-2	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-2	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.528,36
BB A		0	2-1-1	16	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 1.425,60
			1-1-1	10	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		2-1-1	1-2-1	12	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 791,28
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	1-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			2-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	1-4-2	5	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		5								1.440	Keranjang	27	28	54	Rp 0,42	Rp 113,40
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
	E	0		14								1.440	Keranjang	13	12	120	Rp 0,42	Rp 705,60
FG1(A1)	A	1-3-1	1-4-3	6	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	2-4-2	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		6								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-2	1-9-2	6	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	1-9-2	6	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 25,20
			2-9-1	8	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 369,60
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	1-9-2	10	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	5	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 126,00
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-2	10	11	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.481,04
		2-9-1	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	2-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			1-1-1	10	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 495,00
F		2-1-1	1-2-1	12	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.345,68
		1-1-1	1-2-1	5	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 491,40
BB G		0	2-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			1-1-1	16	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 2.977,92
FG2(A1)	F	1-2-1	2-5-1	15	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.016,00
	G	1-1-1		5								2.880	Keranjang	30	29	100	Rp 0,42	Rp 210,00
	H	0		20								2.880	Keranjang	23	27	126	Rp 0,42	Rp 1.058,40
FG2(A1)	F	1-2-1	1-5-1	10	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 756,00
	G	1-1-1		20								1.620	Keranjang	30	29	56	Rp 0,42	Rp 470,40
	H	0		17								1.620	Keranjang	23	27	71	Rp 0,42	Rp 506,94
FG2(A1)	FG2(A1)	2-5-1	1-4-3	9	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		18								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 357,00
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	7	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		16								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		2-4-1	1-9-2	10	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 138,60
			1-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-2	1-9-2	9	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	5	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 218,40
			1-9-1	10	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 117,60
		1-4-1	1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	7	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	6	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 22,68
FG2(A2)		2-9-1	10	10	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.801,80
		1-9-1	10	13	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 514,80
TOTAL OMH																		**Rp 42.849,30**

- ***Decoding* Kromosom *Offspring* Mutasi 7**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	*Cost* (rupiah)	OMH (rupiah)
														Volume	Berat			
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	2-9-1	9	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 1.224,72
			1-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		2-9-1	10	10	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.207,60
BB A		0	1-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			2-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		1-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	1-1-1	10	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 336,60
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		1-1-1	1-2-1	5	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 281,40
BB C		0	1-1-1	10	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 198,00
			2-1-1	16	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		1-1-1	1-3-1	7	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 882,00
FG1(A1)	A	1-3-1	1-4-3	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-1	10	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 264,60
	B	1-2-1		10								1.440	Keranjang	27	28	54	Rp 0,42	Rp 226,80
	C	1-3-1		10								1.440	Keranjang	13	12	120	Rp 0,42	Rp 504,00
	D	0		18								1.440	Keranjang	13	12	120	Rp 0,42	Rp 907,20
	E	0		18								1.440	Keranjang	13	12	120	Rp 0,42	Rp 907,20
FG1(A1)	A	1-3-1	2-4-2	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		12								720	Keranjang	27	28	27	Rp 0,42	Rp 136,08
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		19								720	Keranjang	13	12	60	Rp 0,42	Rp 478,80
	E	0		19								720	Keranjang	13	12	60	Rp 0,42	Rp 478,80
FG1(A1)	A	1-3-1	1-4-1	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		6								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		12								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		5								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-3	2-9-1	8	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 403,20
			1-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	2-9-1	5	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 21,00
			1-9-1	10	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 462,00
			1-9-2	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-2	2-9-1	5	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-1	10	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
			1-9-2	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-9-1	10	10	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.346,40
		1-9-1	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	1-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			2-1-1	5	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 247,50
F		1-1-1	1-2-1	16	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.794,24
		2-1-1	1-2-1	10	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 982,80
BB G		0	1-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			2-1-1	20	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 3.722,40
FG2(A1)	F	1-2-1	1-5-1	17	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.284,80
	G	2-1-1		15								2.880	Keranjang	30	29	100	Rp 0,42	Rp 630,00
	H	0		5								2.880	Keranjang	23	27	126	Rp 0,42	Rp 264,60
FG2(A1)	F	1-2-1	2-5-1	20	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.512,00
	G	2-1-1		7								1.620	Keranjang	30	29	56	Rp 0,42	Rp 164,64
	H	0		16								1.620	Keranjang	23	27	71	Rp 0,42	Rp 477,12
FG2(A1)	FG2(A1)	1-5-1	1-4-3	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	10	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		7								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	6	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 214,20
	I	0		5								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	10	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-1	9	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		10								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	13	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		11								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	8	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 285,60
	I	0		19								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		12								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-9-2	9	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		2-4-2	1-9-1	10	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 277,20
			2-9-1	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		1-4-1	1-9-2	6	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	7	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 305,76
			2-9-1	6	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 70,56
		1-4-2	1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-1	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	7	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 26,46
FG2(A2)		1-9-1	10	13	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 2.342,34
		2-9-1	10	10	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 396,00
TOTAL OMH																		**Rp 44.459,40**

- ***Decoding* Kromosom *Offspring* Mutasi 8**

Item		From	To	Jarak (m)	Kapasitas Tersedia (detik/minggu)	Jumlah Produksi (unit/minggu)	Waktu Proses (detik/unit)	Kapasitas Produksi (unit/minggu)	Sisa Produksi (unit/minggu)	Sisa Kapasitas (detik/minggu)	Unit diproduksi (unit/minggu)	Kebutuhan Material (unit/minggu)	Alat MH	Kapasitas MH		Frekuensi Terpilih	Cost	OMH
														Volume	Berat		(rupiah)	(rupiah)
BB Z		0	1-7-1	16	144.000	4.200	9	16.000	0	106.200	4.200	2.100	Pallet	13	26	162	Rp 1,98	Rp 5.132,16
FG3(A1)		1-7-1	1-8-1	5	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-7-1	5	106.200	4.200	9	11.800	0	68.400	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-7-1	1-8-1	5	118.800	4.200	9	13.200	0	81.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
		1-8-1	1-6-1	6	144.000	4.200	6	24.000	0	118.800	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-6-1	1-8-1	6	81.000	4.200	9	9.000	0	43.200	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 816,48
		1-8-1	1-9-1	5	144.000	4.200	25	5.760	0	39.000	4.200	4.200	Keranjang	26	13	324	Rp 0,42	Rp 680,40
			1-9-2	5	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
			2-9-1	9	144.000	0	25	5.760	0	144.000	0	0	Keranjang	26	13	0	Rp 0,42	Rp -
		1-9-1	10	11	*infinite*	4.200	-	-	0	*infinite*	4.200	4.200	Pallet	30	26	162	Rp 1,98	Rp 3.528,36
BB A		0	2-1-1	10	144.000	3.600	12	12.000	0	100.800	3.600	45	Pallet	1	1	45	Rp 1,98	Rp 891,00
			1-1-1	16	144.000	0	12	12.000	0	144.000	0	0	Pallet	1	1	0	Rp 1,98	Rp -
A		2-1-1	1-2-1	5	144.000	3.600	8	18.000	0	115.200	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
		1-2-1	1-3-1	5	144.000	3.600	2	72.000	0	136.800	3.600	3.600	Keranjang	25	23	157	Rp 0,42	Rp 329,70
BB B		0	2-1-1	16	100.800	3.600	11	9.163	0	61.200	3.600	17	Pallet	2	1	17	Rp 1,98	Rp 538,56
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
B		2-1-1	1-2-1	12	115.200	3.600	3	38.400	0	104.400	3.600	3.600	Keranjang	27	28	134	Rp 0,42	Rp 675,36
BB C		0	2-1-1	16	61.200	3.600	11	5.563	0	21.600	3.600	10	Pallet	2	1	10	Rp 1,98	Rp 316,80
			1-1-1	10	144.000	0	11	13.090	0	144.000	0	0	Pallet	2	1	0	Rp 1,98	Rp -
C		2-1-1	1-3-1	10	136.800	3.600	3	45.600	0	126.000	3.600	3.600	Keranjang	13	12	300	Rp 0,42	Rp 1.260,00
FG1(A1)	A	1-3-1	2-4-1	6	144.000	3.600	100	1.440	2.160	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 158,76
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		6								1.440	Keranjang	13	12	120	Rp 0,42	Rp 302,40
	D	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
	E	0		16								1.440	Keranjang	13	12	120	Rp 0,42	Rp 806,40
FG1(A1)	A	1-3-1	2-4-2	5	144.000	2.160	100	1.440	720	0	1.440	1.440	Keranjang	25	23	63	Rp 0,42	Rp 132,30
	B	1-2-1		6								1.440	Keranjang	27	28	54	Rp 0,42	Rp 136,08
	C	1-3-1		5								1.440	Keranjang	13	12	120	Rp 0,42	Rp 252,00
	D	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
	E	0		12								1.440	Keranjang	13	12	120	Rp 0,42	Rp 604,80
FG1(A1)	A	1-3-1	1-4-1	10	144.000	720	100	1.440	0	72.000	720	720	Keranjang	25	23	32	Rp 0,42	Rp 134,40
	B	1-2-1		10								720	Keranjang	27	28	27	Rp 0,42	Rp 113,40
	C	1-3-1		10								720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
	D	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
	E	0		18								720	Keranjang	13	12	60	Rp 0,42	Rp 453,60
FG1(A1)	A	1-3-1	1-4-2	5	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		5								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		5								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		14								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)	A	1-3-1	1-4-3	10	144.000	0	100	1.440	0	144.000	0	0	Keranjang	25	23	0	Rp 0,42	Rp -
	B	1-2-1		12								0	Keranjang	27	28	0	Rp 0,42	Rp -
	C	1-3-1		10								0	Keranjang	13	12	0	Rp 0,42	Rp -
	D	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
	E	0		19								0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-1	1-9-1	8	39.000	1.440	25	1.560	0	3.000	1.440	1.440	Keranjang	13	12	120	Rp 0,42	Rp 403,20
			1-9-2	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		2-4-2	1-9-1	7	3.000	1.440	25	120	1.320	0	120	120	Keranjang	13	12	10	Rp 0,42	Rp 29,40
			1-9-2	6	144.000	1.320	25	5.760	0	111.000	1.320	1.320	Keranjang	13	12	110	Rp 0,42	Rp 277,20
			2-9-1	6	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-4-1	1-9-1	5	0	720	25	0	720	0	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
			1-9-2	10	111.000	720	25	4.440	0	93.000	720	720	Keranjang	13	12	60	Rp 0,42	Rp 252,00
			2-9-1	10	144.000	0	25	5.760	0	144.000	0	0	Keranjang	13	12	0	Rp 0,42	Rp -
FG1(A1)		1-9-1	10	10	*infinite*	1.560	-	-	0	*infinite*	1.560	1.560	Pallet	24	23	68	Rp 1,98	Rp 1.346,40
		1-9-2	10	10	*infinite*	2.040	-	-	0	*infinite*	2.040	2.040	Pallet	24	23	89	Rp 1,98	Rp 1.762,20
BB F		0	2-1-1	16	21.600	4.500	9	2.400	2.100	0	2.400	29	Pallet	1	1	29	Rp 1,98	Rp 918,72
			1-1-1	5	144.000	2.100	9	16.000	0	125.100	2.100	25	Pallet	1	1	25	Rp 1,98	Rp 247,50
F		2-1-1	1-2-1	10	104.400	2.400	4	26.100	0	94.800	2.400	2.400	Keranjang	9	11	267	Rp 0,42	Rp 1.121,40
		1-1-1	1-2-1	16	94.800	2.100	4	23.700	0	86.400	2.100	2.100	Keranjang	9	11	234	Rp 0,42	Rp 1.572,48
BB G		0	2-1-1	10	0	4.500	12	0	4.500	0	0	0	Pallet	1	1	0	Rp 1,98	Rp -
			1-1-1	9	125.100	4.500	12	10.425	0	71.100	4.500	94	Pallet	1	1	94	Rp 1,98	Rp 1.675,08
FG2(A1)	F	1-2-1	2-5-1	17	144.000	4.500	50	2.880	1.620	0	2.880	2.880	Keranjang	9	11	320	Rp 0,42	Rp 2.284,80
	G	1-1-1		15								2.880	Keranjang	30	29	100	Rp 0,42	Rp 630,00
	H	0		16								2.880	Keranjang	23	27	126	Rp 0,42	Rp 846,72
FG2(A1)	F	1-2-1	1-5-1	20	144.000	1.620	50	2.880	0	63.000	1.620	1.620	Keranjang	9	11	180	Rp 0,42	Rp 1.512,00
	G	1-1-1		5								1.620	Keranjang	30	29	56	Rp 0,42	Rp 117,60
	H	0		14								1.620	Keranjang	23	27	71	Rp 0,42	Rp 417,48
FG2(A1)	FG2(A1)	2-5-1	2-4-1	5	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	2-4-2	10	0	2.880	50	0	2.880	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-1	9	72.000	2.880	50	1.440	1.440	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 321,30
	I	0		12								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-3	5	144.000	1.440	50	2.880	0	72.000	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 178,50
	I	0		16								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	2-5-1	1-4-2	9	144.000	0	50	2.880	0	144.000	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		14								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-1	6	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		18								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	2-4-2	8	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		19								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-1	5	0	1.620	50	0	1.620	0	0	0	Keranjang	23	17	0	Rp 0,42	Rp -
	I	0		12								0	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-3	7	72.000	1.620	50	1.440	180	0	1.440	1.440	Keranjang	23	17	85	Rp 0,42	Rp 249,90
	I	0		16								1.440	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A1)	FG2(A1)	1-5-1	1-4-2	5	144.000	180	50	2.880	0	135.000	180	180	Keranjang	23	17	11	Rp 0,42	Rp 23,10
	I	0		14								180	Keranjang	23	17	0	Rp 0,42	Rp -
FG2(A2)		1-4-1	1-9-1	6	0	1.440	25	0	1.440	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	93.000	1.440	25	3.720	0	57.000	1.440	1.440	Keranjang	22	22	66	Rp 0,42	Rp 166,32
			2-9-1	7	144.000	0	25	5.760	0	144.000	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
		1-4-3	1-9-1	7	0	2.880	25	0	2.880	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	57.000	2.880	25	2.280	600	0	2.280	2.280	Keranjang	22	22	104	Rp 0,42	Rp 262,08
			2-9-1	8	144.000	600	25	5.760	0	129.000	600	600	Keranjang	22	22	28	Rp 0,42	Rp 94,08
		1-4-2	1-9-1	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			1-9-2	6	0	180	25	0	180	0	0	0	Keranjang	22	22	0	Rp 0,42	Rp -
			2-9-1	7	129.000	180	25	5.160	0	124.500	180	180	Keranjang	22	22	9	Rp 0,42	Rp 26,46
FG2(A2)		1-9-2	10	11	*infinite*	3.720	-	-	0	infinite	3.720	3.720	Pallet	41	42	91	Rp 1,98	Rp 1.981,98
		2-9-1	10	10	*infinite*	780	-	-	0	infinite	780	780	Pallet	41	42	20	Rp 1,98	Rp 396,00
TOTAL OMH																		**Rp 41.817,12**

LAMPIRAN E

Perbaikan OMH

- Perbaikan OMH Pada Penugasan Laporan Tugas Akhir Chandra Halim, 2010 :

LAMPIRAN F

Hasil Penugasan

Menggunakan *Software*

Hasil Penugasan *Software* :

Material	Kebutuhan	Produksi	Volume	Weight	Dari	Ke	Kapasitas	Waktu	JumProduksi	JumPindah	Frekuensi	Jarak	Handling	Cost	TotalCost
Bahan Baku	123.00	123.00	1.00	1.00	0-0-0	1-Cutting-1	12000.00	40.00	123.00	123.00	123	0.00	Hand Pallet	8.28	0.00
Cracking	123.00	123.00	2.00	1.00	1-Cutting-1	1-Splitting-1	12000.00	35.00	123.00	123.00	123	7.83	Hand Pallet	8.28	7972.46
Cracking	123.00	123.00	4.00	1.00	1-Splitting-1	1-Shaving-1	12000.00	40.00	123.00	123.00	123	7.83	Hand Pallet	8.28	7972.46
Cracking	123.00	123.00	1.00	2.00	1-Shaving-1	4-Dyeing-2	12000.00	480.00	25.00	25.00	25	8.35	Hand Pallet	8.28	1728.03
Cracking	123.00	123.00	1.00	2.00	1-Shaving-1	2-Dyeing-1	12000.00	480.00	25.00	25.00	25	119.69	Hand Pallet	8.28	24769.85
Cracking	123.00	123.00	1.00	2.00	1-Shaving-1	3-Dyeing-2	12000.00	480.00	25.00	25.00	25	104.03	Hand Pallet	8.28	21529.01
Cracking	123.00	123.00	1.00	2.00	1-Shaving-1	2-Dyeing-4	12000.00	480.00	25.00	25.00	25	70.82	Hand Pallet	8.28	14656.20
Cracking	123.00	123.00	1.00	2.00	1-Shaving-1	4-Dyeing-3	12000.00	480.00	23.00	23.00	23	24.00	Hand Pallet	8.28	4569.46
Cracking	123.00	123.00	1.00	1.00	4-Dyeing-2	1-Seming-1	12000.00	80.00	123.00	25.00	25	93.10	Rangga	8.28	19267.04
Cracking	123.00	123.00	1.00	1.00	2-Dyeing-1	1-Seming-1	12000.00	80.00	123.00	25.00	25	7.03	Rangga	8.28	1454.86
Cracking	123.00	123.00	1.00	1.00	3-Dyeing-2	1-Seming-1	12000.00	80.00	123.00	25.00	25	93.10	Rangga	8.28	19267.04
Cracking	123.00	123.00	1.00	1.00	2-Dyeing-4	1-Seming-1	12000.00	80.00	123.00	25.00	25	43.60	Rangga	8.28	9023.02
Cracking	123.00	123.00	1.00	1.00	4-Dyeing-3	1-Seming-1	12000.00	80.00	123.00	23.00	23	42.06	Rangga	8.28	8007.97
Cracking	123.00	123.00	1.00	1.00	1-Seming-1	1-Vacum-1	12000.00	120.00	100.00	100.00	100	7.24	Rangga	8.28	5993.27
Cracking	123.00	123.00	1.00	1.00	1-Seming-1	2-Vacum-1	12000.00	120.00	23.00	23.00	23	107.64	Rangga	8.28	20494.01
Cracking	123.00	123.00	1.00	1.00	1-Vacum-1	2-Hanging-1	12000.00	480.00	25.00	25.00	25	93.91	Rangga	8.28	19434.67
Cracking	123.00	123.00	1.00	1.00	1-Vacum-1	3-Hanging-3	12000.00	480.00	25.00	25.00	25	9.18	Rangga	8.28	1899.80
Cracking	123.00	123.00	1.00	1.00	1-Vacum-1	1-Hanging-2	12000.00	480.00	25.00	25.00	25	108.89	Rangga	8.28	22534.79
Cracking	123.00	123.00	1.00	1.00	1-Vacum-1	3-Hanging-4	12000.00	480.00	25.00	25.00	25	68.74	Rangga	8.28	14225.74
Cracking	123.00	123.00	1.00	1.00	2-Vacum-1	2-Hanging-2	12000.00	480.00	23.00	23.00	23	9.18	Rangga	8.28	1747.82
Cracking	123.00	123.00	1.00	1.00	2-Hanging-1	1-Stacking-1	12000.00	30.00	123.00	25.00	25	7.66	Rangga	8.28	1585.24
Cracking	123.00	123.00	1.00	1.00	3-Hanging-3	1-Stacking-1	12000.00	30.00	123.00	25.00	25	20.63	Rangga	8.28	4269.38
Cracking	123.00	123.00	1.00	1.00	1-Hanging-2	1-Stacking-1	12000.00	30.00	123.00	25.00	25	95.42	Rangga	8.28	19747.17
Cracking	123.00	123.00	1.00	1.00	3-Hanging-4	1-Stacking-1	12000.00	30.00	123.00	25.00	25	23.57	Rangga	8.28	4877.81
Cracking	123.00	123.00	1.00	1.00	2-Hanging-2	1-Stacking-1	12000.00	30.00	123.00	23.00	23	95.42	Rangga	8.28	18167.40
Cracking	123.00	123.00	1.00	1.00	1-Stacking-1	1-Milling Drum-1	12000.00	30.00	123.00	123.00	123	6.79	Rangga	8.28	6913.54
Cracking	123.00	123.00	1.00	1.00	1-Milling Drum-1	1-Meja Dempul-1	12000.00	120.00	100.00	100.00	100	12.50	Rangga	8.28	10347.50
Cracking	123.00	123.00	1.00	1.00	1-Milling Drum-1	3-Meja Dempul-1	12000.00	120.00	23.00	23.00	23	57.48	Rangga	8.28	10943.85
Cracking	123.00	123.00	1.00	1.00	1-Meja Dempul-1	1-Buffing-1	12000.00	120.00	100.00	100.00	100	13.49	Rangga	8.28	11167.02
Cracking	123.00	123.00	1.00	1.00	3-Meja Dempul-1	3-Buffing-1	12000.00	120.00	23.00	23.00	23	7.57	Rangga	8.28	1441.28
Cracking	123.00	123.00	1.00	1.00	1-Buffing-1	4-Autospray-1	12000.00	30.00	123.00	100.00	100	11.90	Rangga	8.28	9850.82
Cracking	123.00	123.00	1.00	1.00	3-Buffing-1	4-Autospray-1	12000.00	30.00	123.00	23.00	23	60.55	Rangga	8.28	11528.36
Cracking	123.00	123.00	1.00	1.00	4-Autospray-1	1-Ironing-1	12000.00	60.00	123.00	123.00	123	20.84	Rangga	8.28	21219.16
Cracking	123.00	123.00	1.00	1.00	1-Ironing-1	4-Autospray-1	8310.00	120.00	69.00	69.00	69	20.84	Rangga	8.28	11903.43
Cracking	123.00	123.00	1.00	1.00	1-Ironing-1	3-Autospray-1	12000.00	120.00	54.00	54.00	54	71.74	Rangga	8.28	32068.64
Cracking	123.00	123.00	1.00	1.00	4-Autospray-1	1-Stacking-1	8310.00	30.00	123.00	69.00	69	32.84	Rangga	8.28	18757.62
Cracking	123.00	123.00	1.00	1.00	3-Autospray-1	1-Stacking-1	8310.00	30.00	123.00	54.00	54	68.97	Rangga	8.28	30830.42
Cracking	123.00	123.00	1.00	1.00	1-Stacking-1	1-Milling Drum-1	8310.00	30.00	123.00	123.00	123	6.79	Rangga	8.28	6913.54
Cracking	123.00	123.00	1.00	1.00	1-Milling Drum-1	1-Meja Inspeksi-1	12000.00	40.00	123.00	123.00	123	6.58	Rangga	8.28	6699.72
Bahan Baku	54.00	54.00	1.00	1.00	0-0-0	1-Cutting-1	7080.00	40.00	54.00	54.00	54	0.00	Hand Pallet	8.28	0.00
Suede	54.00	54.00	2.00	1.00	1-Cutting-1	1-Splitting-1	7695.00	35.00	54.00	54.00	54	7.83	Hand Pallet	8.28	3500.10
Suede	54.00	54.00	4.00	1.00	1-Splitting-1	1-Shaving-1	7080.00	40.00	54.00	54.00	54	7.83	Hand Pallet	8.28	3500.10
Suede	54.00	54.00	1.00	2.00	1-Shaving-1	1-Dyeing-4	12000.00	480.00	25.00	25.00	25	73.50	Hand Pallet	8.28	15210.83
Suede	54.00	54.00	1.00	2.00	1-Shaving-1	4-Dyeing-3	960.00	480.00	2.00	2.00	2	24.00	Hand Pallet	8.28	397.34
Suede	54.00	54.00	1.00	2.00	1-Shaving-1	3-Dyeing-3	12000.00	480.00	25.00	25.00	25	81.71	Hand Pallet	8.28	16909.88
Suede	54.00	54.00	1.00	2.00	1-Shaving-1	3-Dyeing-2	0.00	480.00	0.00	0.00	0	104.03	Hand Pallet	8.28	0.00
Suede	54.00	54.00	1.00	2.00	1-Shaving-1	2-Dyeing-2	12000.00	480.00	2.00	2.00	2	8.35	Hand Pallet	8.28	138.24
Suede	54.00	54.00	1.00	1.00	1-Dyeing-4	2-Seming-1	12000.00	80.00	54.00	25.00	25	101.16	Rangga	8.28	20935.06
Suede	54.00	54.00	1.00	1.00	4-Dyeing-3	2-Seming-1	12000.00	80.00	54.00	2.00	2	22.17	Rangga	8.28	367.05
Suede	54.00	54.00	1.00	1.00	3-Dyeing-3	2-Seming-1	12000.00	80.00	54.00	25.00	25	22.17	Rangga	8.28	4588.08
Suede	54.00	54.00	1.00	1.00	2-Dyeing-2	2-Seming-1	12000.00	80.00	54.00	2.00	2	7.03	Rangga	8.28	116.39
Suede	54.00	54.00	1.00	1.00	2-Seming-1	3-Vacum-1	12000.00	120.00	54.00	54.00	54	22.38	Rangga	8.28	10004.13
Suede	54.00	54.00	1.00	1.00	3-Vacum-1	4-Hanging-3	12000.00	480.00	25.00	25.00	25	69.82	Rangga	8.28	14449.25
Suede	54.00	54.00	1.00	1.00	3-Vacum-1	3-Hanging-3	0.00	480.00	0.00	0.00	0	9.18	Rangga	8.28	0.00
Suede	54.00	54.00	1.00	1.00	3-Vacum-1	3-Hanging-4	0.00	480.00	0.00	0.00	0	68.74	Rangga	8.28	0.00
Suede	54.00	54.00	1.00	1.00	3-Vacum-1	1-Hanging-3	12000.00	480.00	25.00	25.00	25	34.89	Rangga	8.28	7220.49
Suede	54.00	54.00	1.00	1.00	3-Vacum-1	3-Hanging-1	12000.00	480.00	4.00	4.00	4	64.67	Rangga	8.28	2141.35
Suede	54.00	54.00	1.00	1.00	4-Hanging-3	1-Stacking-1	4620.00	30.00	54.00	25.00	25	20.83	Rangga	8.28	4310.77
Suede	54.00	54.00	1.00	1.00	1-Hanging-3	1-Stacking-1	4620.00	30.00	54.00	25.00	25	20.83	Rangga	8.28	4310.77
Suede	54.00	54.00	1.00	1.00	3-Hanging-1	1-Stacking-1	4620.00	30.00	54.00	4.00	4	7.66	Rangga	8.28	253.64
Suede	54.00	54.00	1.00	1.00	1-Stacking-1	2-Milling Drum-1	12000.00	30.00	54.00	54.00	54	107.19	Rangga	8.28	47915.22
Suede	54.00	54.00	1.00	1.00	2-Milling Drum-1	1-Toogle-1	12000.00	240.00	50.00	50.00	50	109.63	Rangga	8.28	45375.86
Suede	54.00	54.00	1.00	1.00	2-Milling Drum-1	2-Toogle-1	12000.00	240.00	4.00	4.00	4	10.56	Rangga	8.28	349.66
Suede	54.00	54.00	1.00	1.00	1-Toogle-1	3-Buffing-1	9240.00	90.00	54.00	50.00	50	74.29	Rangga	8.28	30748.63
Suede	54.00	54.00	1.00	1.00	2-Toogle-1	3-Buffing-1	9240.00	90.00	54.00	4.00	4	32.34	Rangga	8.28	1070.84
Suede	54.00	54.00	1.00	1.00	3-Buffing-1	1-Milling Drum-1	4620.00	30.00	54.00	54.00	54	65.05	Rangga	8.28	29078.13
Suede	54.00	54.00	1.00	1.00	1-Milling Drum-1	2-Autospray-1	12000.00	30.00	54.00	54.00	54	104.06	Rangga	8.28	46516.07
Suede	54.00	54.00	1.00	1.00	2-Autospray-1	1-Milling Drum-1	3000.00	30.00	54.00	54.00	54	104.06	Rangga	8.28	46516.07
Suede	54.00	54.00	1.00	1.00	1-Milling Drum-1	2-Meja Inspeksi-1	12000.00	40.00	54.00	54.00	54	106.98	Rangga	8.28	47821.34
Bahan Baku	31.00	31.00	1.00	1.00	0-0-0	1-Cutting-1	4920.00	40.00	31.00	31.00	31	0.00	Hand Pallet	8.28	0.00
Fg Linning	31.00	31.00	2.00	1.00	1-Cutting-1	1-Splitting-1	5805.00	35.00	31.00	31.00	31	7.83	Hand Pallet	8.28	2009.32
Fg Linning	31.00	31.00	4.00	1.00	1-Splitting-1	1-Shaving-1	4920.00	40.00	31.00	31.00	31	7.83	Hand Pallet	8.28	2009.32
Fg Linning	31.00	31.00	1.00	2.00	1-Shaving-1	1-Dyeing-4	0.00	480.00	0.00	0.00	0	73.50	Hand Pallet	8.28	0.00
Fg Linning	31.00	31.00	1.00	2.00	1-Shaving-1	4-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Fg Linning	31.00	31.00	1.00	2.00	1-Shaving-1	1-Dyeing-2	12000.00	480.00	25.00	25.00	25	104.03	Hand Pallet	8.28	21529.01
Fg Linning	31.00	31.00	1.00	2.00	1-Shaving-1	4-Dyeing-4	12000.00	480.00	6.00	6.00	6	70.82	Hand Pallet	8.28	3517.49
Fg Linning	31.00	31.00	1.00	1.00	1-Dyeing-2	1-Setting Out-1	12000.00	90.00	31.00	25.00	25	95.83	Rangga	8.28	19832.02
Fg Linning	31.00	31.00	1.00	1.00	4-Dyeing-4	1-Setting Out-1	12000.00	90.00	31.00	6.00	6	65.30	Rangga	8.28	3243.32
Fg Linning	31.00	31.00	1.00	1.00	1-Setting Out-1	1-Vacum-1	0.00	120.00	0.00	0.00	0	14.13	Rangga	8.28	0.00
Fg Linning	31.00	31.00	1.00	1.00	1-Setting Out-1	2-Vacum-1	9240.00	120.00	31.00	31.00	31	129.74	Rangga	8.28	33293.62
Fg Linning	31.00	31.00	1.00	1.00	2-Vacum-1	2-Hanging-1	0.00	480.00	0.00	0.00	0	93.91	Rangga	8.28	0.00

Material	Kebutuhan	Produksi	Volume	Weight	Dari	Ke	Kapasitas	Waktu	JumProduksi	JumPindah	Frekuensi	Jarak	Handling	Cost	TotalCost
Fg Linning	31.00	31.00	1.00	1.00	2-Vacum-1	3-Hanging-4	0.00	480.00	0.00	0.00	0	68.74	Rangga	8.28	0.00
Fg Linning	31.00	31.00	1.00	1.00	2-Vacum-1	4-Hanging-4	12000.00	480.00	25.00	25.00	25	9.18	Rangga	8.28	1899.80
Fg Linning	31.00	31.00	1.00	1.00	2-Vacum-1	4-Hanging-1	12000.00	480.00	6.00	6.00	6	37.33	Rangga	8.28	1854.11
Fg Linning	31.00	31.00	1.00	1.00	4-Hanging-4	1-Stacking-1	3000.00	30.00	31.00	25.00	25	23.57	Rangga	8.28	4877.81
Fg Linning	31.00	31.00	1.00	1.00	4-Hanging-1	1-Stacking-1	3000.00	30.00	31.00	6.00	6	7.66	Rangga	8.28	380.46
Fg Linning	31.00	31.00	1.00	1.00	1-Stacking-1	1-Buffing-1	0.00	90.00	0.00	0.00	0	20.94	Rangga	8.28	0.00
Fg Linning	31.00	31.00	1.00	1.00	1-Stacking-1	2-Buffing-1	12000.00	90.00	31.00	31.00	31	121.34	Rangga	8.28	31138.03
Fg Linning	31.00	31.00	1.00	1.00	2-Buffing-1	2-Meja Dempul-1	12000.00	120.00	31.00	31.00	31	13.49	Rangga	8.28	3461.78
Fg Linning	31.00	31.00	1.00	1.00	2-Meja Dempul-1	1-Rocoater-1	12000.00	120.00	31.00	31.00	31	115.27	Rangga	8.28	29580.36
Fg Linning	31.00	31.00	1.00	1.00	1-Rocoater-1	1-Autospray-1	12000.00	120.00	31.00	31.00	31	16.77	Rangga	8.28	4303.48
Fg Linning	31.00	31.00	1.00	1.00	1-Autospray-1	1-Embos-1	12000.00	60.00	31.00	31.00	31	10.25	Rangga	8.28	2630.33
Fg Linning	31.00	31.00	1.00	1.00	1-Embos-1	1-Autospray-1	8280.00	60.00	31.00	31.00	31	10.25	Rangga	8.28	2630.33
Fg Linning	31.00	31.00	1.00	1.00	1-Autospray-1	1-Ironing-1	4620.00	60.00	31.00	31.00	31	11.62	Rangga	8.28	2981.90
Fg Linning	31.00	31.00	1.00	1.00	1-Ironing-1	1-Meja Inspeksi-1	7080.00	40.00	31.00	31.00	31	14.54	Rangga	8.28	3731.23
Bahan Baku	28.00	28.00	1.00	1.00	0-0-0	1-Cutting-1	3680.00	40.00	28.00	28.00	28	0.00	Hand Pallet	8.28	0.00
Fullup 2tone	28.00	28.00	2.00	1.00	1-Cutting-1	1-Splitting-1	4720.00	35.00	28.00	28.00	28	7.83	Hand Pallet	8.28	1814.87
Fullup 2tone	28.00	28.00	4.00	1.00	1-Splitting-1	1-Shaving-1	3680.00	40.00	28.00	28.00	28	7.83	Hand Pallet	8.28	1814.87
Fullup 2tone	28.00	28.00	1.00	2.00	1-Shaving-1	4-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Fullup 2tone	28.00	28.00	1.00	2.00	1-Shaving-1	1-Dyeing-4	0.00	480.00	0.00	0.00	0	73.50	Hand Pallet	8.28	0.00
Fullup 2tone	28.00	28.00	1.00	2.00	1-Shaving-1	4-Dyeing-1	12000.00	480.00	25.00	25.00	25	119.69	Hand Pallet	8.28	24769.85
Fullup 2tone	28.00	28.00	1.00	2.00	1-Shaving-1	3-Dyeing-2	0.00	480.00	0.00	0.00	0	104.03	Hand Pallet	8.28	0.00
Fullup 2tone	28.00	28.00	1.00	2.00	1-Shaving-1	1-Dyeing-1	12000.00	480.00	3.00	3.00	3	8.35	Hand Pallet	8.28	207.36
Fullup 2tone	28.00	28.00	1.00	1.00	4-Dyeing-1	1-Setting Out-1	9210.00	90.00	28.00	25.00	25	13.93	Rangga	8.28	2882.81
Fullup 2tone	28.00	28.00	1.00	1.00	1-Dyeing-1	1-Setting Out-1	9210.00	90.00	28.00	3.00	3	13.93	Rangga	8.28	345.94
Fullup 2tone	28.00	28.00	1.00	1.00	1-Setting Out-1	2-Vacum-1	5520.00	120.00	28.00	28.00	28	129.74	Rangga	8.28	30071.66
Fullup 2tone	28.00	28.00	1.00	1.00	2-Vacum-1	3-Hanging-1	10080.00	480.00	21.00	21.00	21	64.67	Rangga	8.28	11242.10
Fullup 2tone	28.00	28.00	1.00	1.00	2-Vacum-1	2-Hanging-4	12000.00	480.00	7.00	7.00	7	72.42	Rangga	8.28	4196.45
Fullup 2tone	28.00	28.00	1.00	1.00	3-Hanging-1	2-Stacking-1	12000.00	30.00	28.00	21.00	21	108.06	Rangga	8.28	18784.93
Fullup 2tone	28.00	28.00	1.00	1.00	2-Hanging-4	2-Stacking-1	12000.00	30.00	28.00	7.00	7	86.55	Rangga	8.28	5015.23
Fullup 2tone	28.00	28.00	1.00	1.00	2-Stacking-1	1-Rocoater-1	8280.00	60.00	28.00	28.00	28	6.32	Rangga	8.28	1464.87
Fullup 2tone	28.00	28.00	1.00	1.00	1-Rocoater-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	27.26	Rangga	8.28	0.00
Fullup 2tone	28.00	28.00	1.00	1.00	1-Rocoater-1	4-Buffing-1	12000.00	120.00	28.00	28.00	28	51.00	Rangga	8.28	11820.98
Fullup 2tone	28.00	28.00	1.00	1.00	4-Buffing-1	2-Autospray-1	10380.00	120.00	28.00	28.00	28	87.36	Rangga	8.28	20248.65
Fullup 2tone	28.00	28.00	1.00	1.00	2-Autospray-1	1-Embos-1	10140.00	60.00	28.00	28.00	28	120.72	Rangga	8.28	27980.96
Fullup 2tone	28.00	28.00	1.00	1.00	1-Embos-1	4-Autospray-1	30.00	30.00	1.00	1.00	1	42.71	Rangga	8.28	353.55
Fullup 2tone	28.00	28.00	1.00	1.00	1-Embos-1	3-Autospray-1	5520.00	30.00	27.00	27.00	27	93.61	Rangga	8.28	20922.40
Fullup 2tone	28.00	28.00	1.00	1.00	4-Autospray-1	3-Meja Dempul-1	9240.00	120.00	28.00	1.00	1	53.77	Rangga	8.28	445.11
Fullup 2tone	28.00	28.00	1.00	1.00	3-Autospray-1	3-Meja Dempul-1	9240.00	120.00	28.00	27.00	27	19.47	Rangga	8.28	4351.66
Fullup 2tone	28.00	28.00	1.00	1.00	3-Meja Dempul-1	2-Embos-1	12000.00	60.00	28.00	28.00	28	64.92	Rangga	8.28	15047.42
Bahan Baku	21.00	21.00	1.00	1.00	0-0-0	2-Cutting-1	12000.00	40.00	21.00	21.00	21	0.00	Hand Pallet	8.28	0.00
FGM	21.00	21.00	2.00	1.00	2-Cutting-1	1-Splitting-1	3740.00	35.00	21.00	21.00	21	103.52	Hand Pallet	8.28	17995.71
FGM	21.00	21.00	4.00	1.00	1-Splitting-1	1-Shaving-1	2560.00	40.00	21.00	21.00	21	7.83	Hand Pallet	8.28	1361.15
FGM	21.00	21.00	1.00	2.00	1-Shaving-1	3-Dyeing-3	0.00	480.00	0.00	0.00	0	81.71	Hand Pallet	8.28	0.00
FGM	21.00	21.00	1.00	2.00	1-Shaving-1	4-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
FGM	21.00	21.00	1.00	2.00	1-Shaving-1	3-Dyeing-1	12000.00	480.00	21.00	21.00	21	8.35	Hand Pallet	8.28	1451.55
FGM	21.00	21.00	1.00	1.00	3-Dyeing-1	1-Setting Out-1	6690.00	90.00	21.00	21.00	21	13.93	Rangga	8.28	2421.56
FGM	21.00	21.00	1.00	1.00	1-Setting Out-1	1-Vacum-1	0.00	120.00	0.00	0.00	0	14.13	Rangga	8.28	0.00
FGM	21.00	21.00	1.00	1.00	1-Setting Out-1	4-Vacum-1	12000.00	120.00	21.00	21.00	21	103.24	Rangga	8.28	17947.04
FGM	21.00	21.00	1.00	1.00	4-Vacum-1	1-Hanging-2	0.00	480.00	0.00	0.00	0	108.89	Rangga	8.28	0.00
FGM	21.00	21.00	1.00	1.00	4-Vacum-1	2-Hanging-3	12000.00	480.00	21.00	21.00	21	38.79	Rangga	8.28	6743.18
FGM	21.00	21.00	1.00	1.00	2-Hanging-3	1-Stacking-1	2070.00	30.00	21.00	21.00	21	20.83	Rangga	8.28	3621.05
FGM	21.00	21.00	1.00	1.00	1-Stacking-1	4-Autospray-1	0.00	60.00	0.00	0.00	0	32.84	Rangga	8.28	0.00
FGM	21.00	21.00	1.00	1.00	1-Stacking-1	3-Autospray-1	4710.00	60.00	21.00	21.00	21	68.97	Rangga	8.28	11989.61
FGM	21.00	21.00	1.00	1.00	3-Autospray-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	62.80	Rangga	8.28	0.00
FGM	21.00	21.00	1.00	1.00	3-Autospray-1	4-Buffing-1	8640.00	120.00	21.00	21.00	21	78.46	Rangga	8.28	13639.33
FGM	21.00	21.00	1.00	1.00	4-Buffing-1	1-Rocoater-1	6600.00	120.00	21.00	21.00	21	51.06	Rangga	8.28	8876.17
FGM	21.00	21.00	1.00	1.00	1-Rocoater-1	3-Buffing-1	4380.00	90.00	21.00	21.00	21	78.16	Rangga	8.28	13587.18
FGM	21.00	21.00	1.00	1.00	3-Buffing-1	2-Meja Dempul-1	8280.00	120.00	21.00	21.00	21	42.23	Rangga	8.28	7341.18
FGM	21.00	21.00	1.00	1.00	2-Meja Dempul-1	3-Autospray-1	3450.00	120.00	21.00	21.00	21	54.13	Rangga	8.28	9409.85
FGM	21.00	21.00	1.00	1.00	3-Autospray-1	2-Embos-1	10320.00	60.00	21.00	21.00	21	69.25	Rangga	8.28	12038.28
FGM	21.00	21.00	1.00	1.00	2-Embos-1	2-Ironing-1	12000.00	60.00	21.00	21.00	21	21.87	Rangga	8.28	3801.84
FGM	21.00	21.00	1.00	1.00	2-Ironing-1	2-Meja Inspeksi-1	9840.00	40.00	21.00	21.00	21	14.54	Rangga	8.28	2527.60
Bahan Baku	19.00	19.00	1.00	1.00	0-0-0	2-Cutting-1	11160.00	40.00	19.00	19.00	19	0.00	Hand Pallet	8.28	0.00
GGB	19.00	19.00	2.00	1.00	2-Cutting-1	1-Splitting-1	3005.00	35.00	19.00	19.00	19	103.52	Hand Pallet	8.28	16281.83
GGB	19.00	19.00	4.00	1.00	1-Splitting-1	2-Shaving-1	12000.00	40.00	19.00	19.00	19	119.17	Hand Pallet	8.28	18743.30
GGB	19.00	19.00	1.00	2.00	2-Shaving-1	4-Dyeing-3	0.00	480.00	0.00	0.00	0	24.00	Hand Pallet	8.28	0.00
GGB	19.00	19.00	1.00	2.00	2-Shaving-1	1-Dyeing-1	10560.00	480.00	19.00	19.00	19	8.35	Hand Pallet	8.28	1313.30
GGB	19.00	19.00	1.00	1.00	1-Dyeing-1	1-Setting Out-1	4800.00	90.00	19.00	19.00	19	13.93	Rangga	8.28	2190.94
GGB	19.00	19.00	1.00	1.00	1-Setting Out-1	2-Vacum-1	2160.00	120.00	18.00	18.00	18	129.74	Rangga	8.28	19331.78
GGB	19.00	19.00	1.00	1.00	1-Setting Out-1	1-Vacum-1	0.00	120.00	0.00	0.00	0	14.13	Rangga	8.28	0.00
GGB	19.00	19.00	1.00	1.00	1-Setting Out-1	3-Vacum-1	5520.00	120.00	1.00	1.00	1	100.50	Rangga	8.28	831.94
GGB	19.00	19.00	1.00	1.00	2-Vacum-1	3-Hanging-3	0.00	480.00	0.00	0.00	0	9.18	Rangga	8.28	0.00
GGB	19.00	19.00	1.00	1.00	2-Vacum-1	2-Hanging-4	8640.00	480.00	18.00	18.00	18	72.42	Rangga	8.28	10790.87
GGB	19.00	19.00	1.00	1.00	3-Vacum-1	1-Hanging-1	12000.00	480.00	1.00	1.00	1	9.18	Rangga	8.28	75.99
GGB	19.00	19.00	1.00	1.00	2-Hanging-4	2-Stacking-1	11160.00	30.00	19.00	18.00	18	86.55	Rangga	8.28	12896.30
GGB	19.00	19.00	1.00	1.00	1-Hanging-1	2-Stacking-1	11160.00	30.00	19.00	1.00	1	108.06	Rangga	8.28	894.52
GGB	19.00	19.00	1.00	1.00	2-Stacking-1	2-Rocoater-1	12000.00	240.00	19.00	19.00	19	109.46	Rangga	8.28	17216.09
GGB	19.00	19.00	1.00	1.00	2-Rocoater-1	1-Meja Dempul-1	0.00	120.00	0.00	0.00	0	86.63	Rangga	8.28	0.00
GGB	19.00	19.00	1.00	1.00	2-Rocoater-1	3-Meja Dempul-1	5880.00	120.00	19.00	19.00	19	29.81	Rangga	8.28	4688.58
GGB	19.00	19.00	1.00	1.00	3-Meja Dempul-1	4-Buffing-1	6120.00	90.00	19.00	19.00	19	59.01	Rangga	8.28	9281.21
GGB	19.00	19.00	1.00	1.00	4-Buffing-1	3-Autospray-1	930.00	90.00	10.00	10.00	10	78.46	Rangga	8.28	6494.92

Material	Kebutuhan	Produksi	Volume	Weight	Dari	Ke	Kapasitas	Waktu	JumProduksi	JumPindah	Frekuensi	Jarak	Handling	Cost	TotalCost
GGB	19.00	19.00	1.00	1.00	4-Buffing-1	4-Autospray-1	0.00	90.00	0.00	0.00	0	11.90	Rangga	8.28	0.00
GGB	19.00	19.00	1.00	1.00	4-Buffing-1	1-Autospray-1	6420.00	90.00	9.00	9.00	9	35.16	Rangga	8.28	2619.49
GGB	19.00	19.00	1.00	1.00	3-Autospray-1	2-Embos-1	9060.00	180.00	19.00	10.00	10	69.25	Rangga	8.28	5732.52
GGB	19.00	19.00	1.00	1.00	1-Autospray-1	2-Embos-1	9060.00	180.00	19.00	9.00	9	128.81	Rangga	8.28	9596.60
GGB	19.00	19.00	1.00	1.00	2-Embos-1	2-Autospray-1	7020.00	90.00	19.00	19.00	19	10.21	Rangga	8.28	1605.85
GGB	19.00	19.00	1.00	1.00	2-Autospray-1	1-Ironing-1	2760.00	60.00	19.00	19.00	19	98.85	Rangga	8.28	15547.33
GGB	19.00	19.00	1.00	1.00	1-Ironing-1	2-Meja Inspeksi-1	9000.00	40.00	19.00	19.00	19	101.77	Rangga	8.28	16006.59
Bahan Baku	20.00	20.00	1.00	1.00	0-0-0	1-Cutting-1	2560.00	40.00	20.00	20.00	20	0.00	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	2.00	1.00	1-Cutting-1	1-Splitting-1	2340.00	35.00	20.00	20.00	20	7.83	Hand Pallet	8.28	1296.33
Waxy	20.00	20.00	4.00	1.00	1-Splitting-1	2-Shaving-1	11240.00	40.00	20.00	20.00	20	119.17	Hand Pallet	8.28	19729.79
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	2-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	3-Dyeing-1	1920.00	480.00	4.00	4.00	4	8.35	Hand Pallet	8.28	276.49
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	1-Dyeing-1	1440.00	480.00	3.00	3.00	3	8.35	Hand Pallet	8.28	207.36
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	2-Dyeing-4	0.00	480.00	0.00	0.00	0	70.82	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	3-Dyeing-2	0.00	480.00	0.00	0.00	0	104.03	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	3-Dyeing-3	0.00	480.00	0.00	0.00	0	81.71	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	4-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	4-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	1-Dyeing-4	0.00	480.00	0.00	0.00	0	73.50	Hand Pallet	8.28	0.00
Waxy	20.00	20.00	1.00	2.00	2-Shaving-1	1-Dyeing-3	12000.00	480.00	13.00	13.00	13	81.71	Hand Pallet	8.28	8793.14
Waxy	20.00	20.00	1.00	1.00	3-Dyeing-1	2-Setting Out-1	12000.00	90.00	20.00	4.00	4	96.29	Rangga	8.28	3188.35
Waxy	20.00	20.00	1.00	1.00	1-Dyeing-1	2-Setting Out-1	12000.00	90.00	20.00	3.00	3	96.29	Rangga	8.28	2391.27
Waxy	20.00	20.00	1.00	1.00	1-Dyeing-3	2-Setting Out-1	12000.00	90.00	20.00	13.00	13	32.20	Rangga	8.28	3465.17
Waxy	20.00	20.00	1.00	1.00	2-Setting Out-1	4-Vacum-1	9480.00	120.00	20.00	20.00	20	33.89	Rangga	8.28	5610.83
Waxy	20.00	20.00	1.00	1.00	4-Vacum-1	4-Hanging-2	12000.00	480.00	20.00	20.00	20	42.72	Rangga	8.28	7072.72
Waxy	20.00	20.00	1.00	1.00	4-Hanging-2	1-Stacking-1	1440.00	30.00	20.00	20.00	20	95.42	Rangga	8.28	15797.74
Waxy	20.00	20.00	1.00	1.00	1-Stacking-1	2-Rocoater-1	7440.00	60.00	20.00	20.00	20	94.08	Rangga	8.28	15575.88
Waxy	20.00	20.00	1.00	1.00	2-Rocoater-1	3-Buffing-1	2490.00	90.00	20.00	20.00	20	22.24	Rangga	8.28	3682.05
Waxy	20.00	20.00	1.00	1.00	3-Buffing-1	1-Milling Drum-1	1380.00	30.00	20.00	20.00	20	65.05	Rangga	8.28	10769.68
Waxy	20.00	20.00	1.00	1.00	1-Milling Drum-1	4-Autospray-1	0.00	120.00	0.00	0.00	0	26.05	Rangga	8.28	0.00
Waxy	20.00	20.00	1.00	1.00	1-Milling Drum-1	1-Autospray-1	5610.00	120.00	20.00	20.00	20	17.23	Rangga	8.28	2852.60
Waxy	20.00	20.00	1.00	1.00	1-Autospray-1	1-Embos-1	8460.00	120.00	20.00	20.00	20	10.25	Rangga	8.28	1696.99
Waxy	20.00	20.00	1.00	1.00	1-Embos-1	1-Ironing-1	1620.00	60.00	20.00	20.00	20	21.87	Rangga	8.28	3620.80
Waxy	20.00	20.00	1.00	1.00	1-Ironing-1	1-Meja Inspeksi-1	5840.00	40.00	20.00	20.00	20	14.54	Rangga	8.28	2407.24
Bahan Baku	26.00	26.00	1.00	1.00	0-0-0	1-Cutting-1	1760.00	40.00	26.00	26.00	26	0.00	Hand Pallet	8.28	0.00
Nubuck	26.00	26.00	2.00	1.00	1-Cutting-1	1-Splitting-1	1640.00	35.00	26.00	26.00	26	7.83	Hand Pallet	8.28	1685.24
Nubuck	26.00	26.00	4.00	1.00	1-Splitting-1	1-Shaving-1	1720.00	40.00	26.00	26.00	26	7.83	Hand Pallet	8.28	1685.24
Nubuck	26.00	26.00	1.00	2.00	1-Shaving-1	1-Dyeing-1	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Nubuck	26.00	26.00	1.00	2.00	1-Shaving-1	2-Dyeing-2	11040.00	480.00	23.00	23.00	23	8.35	Hand Pallet	8.28	1589.79
Nubuck	26.00	26.00	1.00	2.00	1-Shaving-1	3-Dyeing-2	0.00	480.00	0.00	0.00	0	104.03	Hand Pallet	8.28	0.00
Nubuck	26.00	26.00	1.00	2.00	1-Shaving-1	3-Dyeing-3	0.00	480.00	0.00	0.00	0	81.71	Hand Pallet	8.28	0.00
Nubuck	26.00	26.00	1.00	2.00	1-Shaving-1	3-Dyeing-4	12000.00	480.00	3.00	3.00	3	73.50	Hand Pallet	8.28	1825.30
Nubuck	26.00	26.00	1.00	1.00	2-Dyeing-2	2-Setting Out-1	10200.00	90.00	26.00	23.00	23	13.93	Rangga	8.28	2652.19
Nubuck	26.00	26.00	1.00	1.00	3-Dyeing-4	2-Setting Out-1	10200.00	90.00	26.00	3.00	3	79.03	Rangga	8.28	1962.63
Nubuck	26.00	26.00	1.00	1.00	2-Setting Out-1	3-Vacum-1	5400.00	120.00	26.00	26.00	26	29.27	Rangga	8.28	6299.72
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	2-Hanging-2	960.00	480.00	2.00	2.00	2	9.18	Rangga	8.28	151.98
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	4-Hanging-1	9120.00	480.00	19.00	19.00	19	37.33	Rangga	8.28	5871.34
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	4-Hanging-3	0.00	480.00	0.00	0.00	0	69.82	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	3-Hanging-1	0.00	480.00	0.00	0.00	0	64.67	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	2-Hanging-4	0.00	480.00	0.00	0.00	0	72.42	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	3-Vacum-1	1-Hanging-4	12000.00	480.00	5.00	5.00	5	37.73	Rangga	8.28	1561.64
Nubuck	26.00	26.00	1.00	1.00	2-Hanging-2	1-Stacking-1	840.00	30.00	26.00	2.00	2	95.42	Rangga	8.28	1579.77
Nubuck	26.00	26.00	1.00	1.00	4-Hanging-1	1-Stacking-1	840.00	30.00	26.00	19.00	19	7.66	Rangga	8.28	1204.78
Nubuck	26.00	26.00	1.00	1.00	1-Hanging-4	1-Stacking-1	840.00	30.00	26.00	5.00	5	23.57	Rangga	8.28	975.56
Nubuck	26.00	26.00	1.00	1.00	1-Stacking-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	20.94	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	1-Stacking-1	3-Buffing-1	690.00	120.00	5.00	5.00	5	71.84	Rangga	8.28	2973.46
Nubuck	26.00	26.00	1.00	1.00	1-Stacking-1	4-Buffing-1	4410.00	120.00	21.00	21.00	21	44.76	Rangga	8.28	7780.99
Nubuck	26.00	26.00	1.00	1.00	3-Buffing-1	4-Autospray-1	0.00	90.00	0.00	0.00	0	60.55	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	3-Buffing-1	3-Autospray-1	30.00	90.00	0.00	0.00	0	11.90	Rangga	8.28	0.00
Nubuck	26.00	26.00	1.00	1.00	3-Buffing-1	1-Autospray-1	3210.00	90.00	26.00	5.00	5	62.24	Rangga	8.28	2576.11
Nubuck	26.00	26.00	1.00	1.00	4-Buffing-1	1-Autospray-1	3210.00	90.00	26.00	21.00	21	35.16	Rangga	8.28	6112.14
Nubuck	26.00	26.00	1.00	1.00	1-Autospray-1	2-Meja Inspeksi-1	8240.00	40.00	26.00	26.00	26	113.39	Rangga	8.28	24404.70
Bahan Baku	19.00	19.00	1.00	1.00	0-0-0	1-Cutting-1	720.00	40.00	18.00	18.00	18	0.00	Hand Pallet	8.28	0.00
Bahan Baku	19.00	19.00	1.00	1.00	0-0-0	2-Cutting-1	10400.00	40.00	1.00	1.00	1	0.00	Hand Pallet	8.28	0.00
Action	19.00	19.00	2.00	1.00	1-Cutting-1	1-Splitting-1	730.00	35.00	19.00	18.00	18	7.83	Hand Pallet	8.28	1166.70
Action	19.00	19.00	2.00	1.00	2-Cutting-1	1-Splitting-1	730.00	35.00	19.00	1.00	1	103.52	Hand Pallet	8.28	856.94
Action	19.00	19.00	4.00	1.00	1-Splitting-1	1-Shaving-1	680.00	40.00	17.00	17.00	17	7.83	Hand Pallet	8.28	1101.88
Action	19.00	19.00	4.00	1.00	1-Splitting-1	2-Shaving-1	10440.00	40.00	2.00	2.00	2	119.17	Hand Pallet	8.28	1972.98
Action	19.00	19.00	1.00	2.00	1-Shaving-1	2-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
Action	19.00	19.00	1.00	2.00	1-Shaving-1	2-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Action	19.00	19.00	1.00	2.00	1-Shaving-1	4-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Action	19.00	19.00	1.00	2.00	1-Shaving-1	3-Dyeing-2	0.00	480.00	0.00	0.00	0	104.03	Hand Pallet	8.28	0.00
Action	19.00	19.00	1.00	2.00	1-Shaving-1	1-Dyeing-3	5760.00	480.00	12.00	12.00	12	81.71	Hand Pallet	8.28	8116.74
Action	19.00	19.00	1.00	2.00	1-Shaving-1	3-Dyeing-4	10560.00	480.00	7.00	5.00	5	73.50	Hand Pallet	8.28	3042.17
Action	19.00	19.00	1.00	2.00	2-Shaving-1	3-Dyeing-4	10560.00	480.00	7.00	2.00	2	73.50	Hand Pallet	8.28	1216.87
Action	19.00	19.00	1.00	1.00	1-Dyeing-3	1-Seming-1	2160.00	80.00	19.00	12.00	12	42.06	Rangga	8.28	4178.07
Action	19.00	19.00	1.00	1.00	3-Dyeing-4	1-Seming-1	2160.00	80.00	19.00	7.00	7	43.60	Rangga	8.28	2526.45
Action	19.00	19.00	1.00	1.00	1-Seming-1	4-Vacum-1	7080.00	120.00	19.00	19.00	19	78.40	Rangga	8.28	12330.91
Action	19.00	19.00	1.00	1.00	4-Vacum-1	1-Hanging-2	0.00	480.00	0.00	0.00	0	108.89	Rangga	8.28	0.00
Action	19.00	19.00	1.00	1.00	4-Vacum-1	1-Hanging-4	9600.00	480.00	19.00	19.00	19	37.73	Rangga	8.28	5934.25
Action	19.00	19.00	1.00	1.00	1-Hanging-4	2-Stacking-1	10590.00	30.00	19.00	19.00	19	86.55	Rangga	8.28	13612.76
Action	19.00	19.00	1.00	1.00	2-Stacking-1	2-Ironing-1	10740.00	60.00	19.00	19.00	19	88.40	Rangga	8.28	13903.73
Action	19.00	19.00	1.00	1.00	2-Ironing-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	94.20	Rangga	8.28	0.00

Item	Material	Kebutuhan	Produksi	Volume	Weight	Dari	Ke	Kapasitas	Waktu	JumProduksi	JumPindah	Frekuensi	Jarak	Handling	Cost	TotalCost
Action	Action	19.00	19.00	1.00	1.00	2-Ironing-1	2-Buffing-1	9210.00	120.00	19.00	19.00	19	8.94	Rangga	8.28	1406.10
Action	Action	19.00	19.00	1.00	1.00	2-Buffing-1	2-Rocoater-1	6240.00	240.00	19.00	19.00	19	27.26	Rangga	8.28	4287.51
Action	Action	19.00	19.00	1.00	1.00	2-Rocoater-1	1-Milling Drum-1	780.00	240.00	3.00	3.00	3	87.30	Rangga	8.28	2168.01
Action	Action	19.00	19.00	1.00	1.00	2-Rocoater-1	2-Milling Drum-1	10380.00	240.00	16.00	16.00	16	13.11	Rangga	8.28	1736.39
Action	Action	19.00	19.00	1.00	1.00	1-Milling Drum-1	1-Autospray-1	870.00	30.00	19.00	3.00	3	17.23	Rangga	8.28	427.89
Action	Action	19.00	19.00	1.00	1.00	2-Milling Drum-1	1-Autospray-1	870.00	30.00	19.00	16.00	16	106.80	Rangga	8.28	14145.45
Action	Action	19.00	19.00	1.00	1.00	1-Autospray-1	1-Meja Inspeksi-1	5040.00	40.00	19.00	19.00	19	23.82	Rangga	8.28	3746.46
Splitoil	Bahan Baku	17.00	17.00	1.00	1.00	0-0-0	2-Cutting-1	10360.00	40.00	17.00	17.00	17	0.00	Hand Pallet	8.28	0.00
Splitoil	Splitoil	17.00	17.00	2.00	1.00	2-Cutting-1	2-Splitting-1	12000.00	35.00	17.00	17.00	17	7.83	Hand Pallet	8.28	1101.88
Splitoil	Splitoil	17.00	17.00	4.00	1.00	2-Splitting-1	1-Shaving-1	0.00	40.00	0.00	0.00	0	111.26	Hand Pallet	8.28	0.00
Splitoil	Splitoil	17.00	17.00	4.00	1.00	2-Splitting-1	2-Shaving-1	10360.00	40.00	17.00	17.00	17	7.83	Hand Pallet	8.28	1101.88
Splitoil	Splitoil	17.00	17.00	1.00	2.00	2-Shaving-1	4-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	2.00	2-Shaving-1	2-Dyeing-3	12000.00	480.00	17.00	17.00	17	24.00	Hand Pallet	8.28	3377.42
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Dyeing-3	2-Seming-1	7680.00	80.00	17.00	17.00	17	22.17	Rangga	8.28	3119.90
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Seming-1	4-Vacum-1	4800.00	120.00	17.00	17.00	17	40.78	Rangga	8.28	5738.81
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	4-Hanging-1	0.00	480.00	0.00	0.00	0	37.33	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	2-Hanging-3	1920.00	480.00	4.00	4.00	4	38.79	Rangga	8.28	1284.41
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	2-Hanging-4	0.00	480.00	0.00	0.00	0	72.42	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	3-Hanging-1	0.00	480.00	0.00	0.00	0	64.67	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	2-Hanging-2	0.00	480.00	0.00	0.00	0	9.18	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	3-Hanging-3	0.00	480.00	0.00	0.00	0	9.18	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	2-Hanging-1	0.00	480.00	0.00	0.00	0	93.91	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	1-Hanging-2	0.00	480.00	0.00	0.00	0	108.89	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	1-Hanging-4	480.00	480.00	1.00	1.00	1	37.73	Rangga	8.28	312.33
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Vacum-1	3-Hanging-2	12000.00	480.00	12.00	12.00	12	38.10	Rangga	8.28	3784.70
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Hanging-3	2-Stacking-1	10020.00	30.00	17.00	4.00	4	52.94	Rangga	8.28	1752.95
Splitoil	Splitoil	17.00	17.00	1.00	1.00	1-Hanging-4	2-Stacking-1	10020.00	30.00	17.00	1.00	1	86.55	Rangga	8.28	716.46
Splitoil	Splitoil	17.00	17.00	1.00	1.00	3-Hanging-2	2-Stacking-1	10020.00	30.00	17.00	12.00	12	7.66	Rangga	8.28	760.91
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Stacking-1	1-Milling Drum-1	60.00	30.00	2.00	2.00	2	6.79	Rangga	8.28	112.42
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Stacking-1	2-Milling Drum-1	6540.00	30.00	15.00	15.00	15	93.62	Rangga	8.28	11624.80
Splitoil	Splitoil	17.00	17.00	1.00	1.00	1-Milling Drum-1	3-Meja Dempul-1	3600.00	120.00	17.00	2.00	2	57.48	Rangga	8.28	951.64
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Milling Drum-1	3-Meja Dempul-1	3600.00	120.00	17.00	15.00	15	42.91	Rangga	8.28	5328.13
Splitoil	Splitoil	17.00	17.00	1.00	1.00	3-Meja Dempul-1	3-Buffing-1	90.00	120.00	0.00	0.00	0	7.57	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	3-Meja Dempul-1	4-Buffing-1	1890.00	120.00	15.00	15.00	15	59.01	Rangga	8.28	7327.27
Splitoil	Splitoil	17.00	17.00	1.00	1.00	3-Meja Dempul-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	43.33	Rangga	8.28	0.00
Splitoil	Splitoil	17.00	17.00	1.00	1.00	3-Meja Dempul-1	2-Buffing-1	6930.00	120.00	2.00	2.00	2	57.07	Rangga	8.28	944.85
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Buffing-1	1-Ironing-1	420.00	60.00	7.00	7.00	7	32.74	Rangga	8.28	1897.15
Splitoil	Splitoil	17.00	17.00	1.00	1.00	4-Buffing-1	2-Ironing-1	9600.00	60.00	10.00	8.00	8	82.83	Rangga	8.28	5485.33
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Buffing-1	2-Ironing-1	9600.00	60.00	10.00	2.00	2	8.94	Rangga	8.28	148.01
Splitoil	Splitoil	17.00	17.00	1.00	1.00	1-Ironing-1	2-Autospray-1	5310.00	120.00	17.00	7.00	7	98.85	Rangga	8.28	5727.96
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Ironing-1	2-Autospray-1	5310.00	120.00	17.00	10.00	10	11.62	Rangga	8.28	961.90
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Autospray-1	2-Embos-1	5640.00	60.00	17.00	17.00	17	10.25	Rangga	8.28	1442.44
Splitoil	Splitoil	17.00	17.00	1.00	1.00	2-Embos-1	2-Meja Inspeksi-1	7200.00	40.00	17.00	17.00	17	34.07	Rangga	8.28	4794.53
Crazy Horse	Bahan Baku	21.00	21.00	1.00	1.00	0-0-0	2-Cutting-1	9680.00	40.00	21.00	21.00	21	0.00	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	2.00	1.00	2-Cutting-1	1-Splitting-1	65.00	35.00	1.00	1.00	1	103.52	Hand Pallet	8.28	856.94
Crazy Horse	Crazy Horse	21.00	21.00	2.00	1.00	2-Cutting-1	2-Splitting-1	11405.00	35.00	20.00	20.00	20	7.83	Hand Pallet	8.28	1296.33
Crazy Horse	Crazy Horse	21.00	21.00	4.00	1.00	1-Splitting-1	2-Shaving-1	9680.00	40.00	21.00	1.00	1	119.17	Hand Pallet	8.28	986.49
Crazy Horse	Crazy Horse	21.00	21.00	4.00	1.00	2-Splitting-1	2-Shaving-1	9680.00	40.00	21.00	20.00	20	7.83	Hand Pallet	8.28	1296.33
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	3-Dyeing-1	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	2-Dyeing-3	3840.00	480.00	8.00	8.00	8	24.00	Hand Pallet	8.28	1589.38
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	2-Dyeing-4	0.00	480.00	0.00	0.00	0	70.82	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	1-Dyeing-4	0.00	480.00	0.00	0.00	0	73.50	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	4-Dyeing-3	0.00	480.00	0.00	0.00	0	24.00	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	2-Dyeing-1	0.00	480.00	0.00	0.00	0	119.69	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	2-Dyeing-2	0.00	480.00	0.00	0.00	0	8.35	Hand Pallet	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	2.00	2-Shaving-1	4-Dyeing-4	9120.00	480.00	13.00	13.00	13	70.82	Hand Pallet	8.28	7621.22
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Dyeing-3	1-Setting Out-1	3090.00	90.00	21.00	8.00	8	58.31	Rangga	8.28	3861.52
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	4-Dyeing-4	1-Setting Out-1	3090.00	90.00	21.00	13.00	13	65.30	Rangga	8.28	7027.19
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Setting Out-1	1-Vacum-1	0.00	120.00	0.00	0.00	0	14.13	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Setting Out-1	3-Vacum-1	2280.00	120.00	19.00	19.00	19	100.50	Rangga	8.28	15806.84
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Setting Out-1	2-Vacum-1	0.00	120.00	0.00	0.00	0	129.74	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Setting Out-1	4-Vacum-1	2760.00	120.00	2.00	2.00	2	103.24	Rangga	8.28	1709.24
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	3-Vacum-1	1-Hanging-1	11520.00	480.00	21.00	19.00	19	9.18	Rangga	8.28	1443.85
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	4-Vacum-1	1-Hanging-1	11520.00	480.00	21.00	2.00	2	9.18	Rangga	8.28	151.98
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Hanging-1	1-Stacking-1	60.00	30.00	2.00	2.00	2	7.66	Rangga	8.28	126.82
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Hanging-1	2-Stacking-1	9510.00	30.00	19.00	19.00	19	108.06	Rangga	8.28	16995.89
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Stacking-1	1-Buffing-1	0.00	120.00	0.00	0.00	0	20.94	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Stacking-1	3-Buffing-1	90.00	120.00	0.00	0.00	0	71.84	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Stacking-1	4-Buffing-1	90.00	120.00	0.00	0.00	0	44.76	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Stacking-1	2-Buffing-1	6690.00	120.00	21.00	2.00	2	121.34	Rangga	8.28	2008.91
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Stacking-1	2-Buffing-1	6690.00	120.00	21.00	19.00	19	20.94	Rangga	8.28	3293.49
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Buffing-1	1-Autospray-1	300.00	90.00	3.00	3.00	3	111.74	Rangga	8.28	2774.95
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Buffing-1	3-Autospray-1	30.00	90.00	0.00	0.00	0	61.40	Rangga	8.28	0.00
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Buffing-1	2-Autospray-1	3270.00	90.00	18.00	18.00	18	20.56	Rangga	8.28	3063.52
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	1-Autospray-1	2-Embos-1	4620.00	60.00	21.00	3.00	3	128.81	Rangga	8.28	3198.87
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Autospray-1	2-Embos-1	4620.00	60.00	21.00	18.00	18	10.25	Rangga	8.28	1527.29
Crazy Horse	Crazy Horse	21.00	21.00	1.00	1.00	2-Embos-1	1-Meja Inspeksi-1	4280.00	40.00	21.00	21.00	21	107.73	Rangga	8.28	18727.57
							Total OMH									1,426,258.18

LAMPIRAN G

List Program *Software*

```
unit About;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, ExtCtrls, StdCtrls, jpeg;

type
  TFormAbout = class(TForm)
    Image1: TImage;
    Button1: TButton;
    Image4: TImage;
    Label1: TLabel;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    Label5: TLabel;
    Label6: TLabel;
    procedure Button1Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  FormAbout: TFormAbout;

implementation

{$R *.dfm}

procedure TFormAbout.Button1Click(Sender: TObject);
begin
     Close;
end;

end.
```

```
unit Input;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, ExtCtrls, StdCtrls;

type
  TFormInput = class(TForm)
    Panel2: TPanel;
    Label1: TLabel;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    TGenerasi: TEdit;
    TPopulasi: TEdit;
    TPc: TEdit;
    TPm: TEdit;
    Label5: TLabel;
    TPSave: TEdit;
    PSave: TButton;
    Button1: TButton;
    Panel1: TPanel;
    Label6: TLabel;
    Splitter1: TSplitter;
    Label8: TLabel;
    Label11: TLabel;
    Shape1: TShape;
    Label12: TLabel;
    Shape2: TShape;
    Label13: TLabel;
    Shape4: TShape;
    Label15: TLabel;
    TItem: TEdit;
    BItem: TButton;
    CItem: TComboBox;
    No1: TEdit;
    TVolume1: TEdit;
    TWeight1: TEdit;
    TVolume2: TEdit;
    TVolume3: TEdit;
    TVolume4: TEdit;
    No2: TEdit;
    No3: TEdit;
    No4: TEdit;
    TWeight2: TEdit;
    TWeight3: TEdit;
    TWeight4: TEdit;
    SB: TScrollBar;
    Label7: TLabel;
    Label9: TLabel;
    Label10: TLabel;
    Label14: TLabel;
    RadioGroup1: TRadioGroup;
    Label19: TLabel;
    TMaterial: TEdit;
    TLambang: TEdit;
    TPindah: TEdit;
    TPendahulu: TEdit;
    TProduksi: TEdit;
    T0: TRadioButton;
    T1: TRadioButton;
    T2: TRadioButton;
    T3: TRadioButton;
    T4: TRadioButton;
    T5: TRadioButton;
    Label18: TLabel;
    Label20: TLabel;
    Label21: TLabel;
```

```
    Label22: TLabel;
    GroupBox1: TGroupBox;
    TLokasi: TEdit;
    TLLokasi: TEdit;
    TKapasitas: TEdit;
    TC1: TEdit;
    TC3: TEdit;
    TC5: TEdit;
    TC4: TEdit;
    TC2: TEdit;
    TC6: TEdit;
    C1: TCheckBox;
    C2: TCheckBox;
    C3: TCheckBox;
    C5: TCheckBox;
    C6: TCheckBox;
    C4: TCheckBox;
    BLokasi: TButton;
    Splitter2: TSplitter;
    Label23: TLabel;
    Label24: TLabel;
    Label25: TLabel;
    THandling: TEdit;
    TCost: TEdit;
    BHandling: TButton;
    Splitter4: TSplitter;
    Shape3: TShape;
    Label26: TLabel;
    TLokasi1: TComboBox;
    TLokasi2: TComboBox;
    TLokasi3: TComboBox;
    TLokasi4: TComboBox;
    Shape5: TShape;
    Label27: TLabel;
    TWaktu1: TEdit;
    TWaktu2: TEdit;
    TWaktu3: TEdit;
    TWaktu4: TEdit;
    Label28: TLabel;
    Shape6: TShape;
    TMat1: TComboBox;
    TMat2: TComboBox;
    TMat3: TComboBox;
    TMat4: TComboBox;
    Panel3: TPanel;
    Label29: TLabel;
    Shape7: TShape;
    Label30: TLabel;
    Shape8: TShape;
    Label31: TLabel;
    Shape9: TShape;
    SBJarak: TScrollBar;
    From1: TEdit;
    To1: TEdit;
    Jarak1: TEdit;
    From2: TEdit;
    To2: TEdit;
    Jarak2: TEdit;
    From3: TEdit;
    To4: TEdit;
    Jarak3: TEdit;
    From4: TEdit;
    To3: TEdit;
    Jarak4: TEdit;
    Button2: TButton;
    Panel4: TPanel;
    Label17: TLabel;
    Label16: TLabel;
    TCase: TEdit;
    BCase: TButton;
```

```
    BLoad: TButton;
    Splitter3: TSplitter;
    Label32: TLabel;
    Label33: TLabel;
    CBSProduksi: TComboBox;
    CBSKapasitas: TComboBox;
    Label34: TLabel;
    TKebutuhan: TEdit;
    procedure Button1Click(Sender: TObject);
    procedure FormCreate(Sender: TObject);
    procedure TPSaveChange(Sender: TObject);
    procedure PSaveClick(Sender: TObject);
    procedure TItemChange(Sender: TObject);
    procedure TGenerasiChange(Sender: TObject);
    procedure TPopulasiChange(Sender: TObject);
    procedure TPcChange(Sender: TObject);
    procedure TPmChange(Sender: TObject);
    procedure CItemChange(Sender: TObject);
    procedure SBChange(Sender: TObject);
    procedure TWeight1Change(Sender: TObject);
    procedure TWeight2Change(Sender: TObject);
    procedure TWeight3Change(Sender: TObject);
    procedure TWeight4Change(Sender: TObject);
    procedure TCaseChange(Sender: TObject);
    procedure BCaseClick(Sender: TObject);
    procedure TCaseKeyPress(Sender: TObject; var Key: Char);
    procedure TPSaveKeyPress(Sender: TObject; var Key: Char);
    procedure TMaterialChange(Sender: TObject);
    procedure TLambangChange(Sender: TObject);
    procedure TProduksiChange(Sender: TObject);
    procedure TPindahChange(Sender: TObject);
    procedure BItemClick(Sender: TObject);
    procedure THandlingChange(Sender: TObject);
    procedure TCostChange(Sender: TObject);
    procedure BHandlingClick(Sender: TObject);
    procedure TLokasiChange(Sender: TObject);
    procedure TLLokasiChange(Sender: TObject);
    procedure TKapasitasChange(Sender: TObject);
    procedure C1Click(Sender: TObject);
    procedure C2Click(Sender: TObject);
    procedure C3Click(Sender: TObject);
    procedure C4Click(Sender: TObject);
    procedure C5Click(Sender: TObject);
    procedure C6Click(Sender: TObject);
    procedure BLokasiClick(Sender: TObject);
    procedure TWaktu1Change(Sender: TObject);
    procedure TLokasi1Change(Sender: TObject);
    procedure TLokasi2Change(Sender: TObject);
    procedure TLokasi3Change(Sender: TObject);
    procedure TLokasi4Change(Sender: TObject);
    procedure TWaktu2Change(Sender: TObject);
    procedure TWaktu3Change(Sender: TObject);
    procedure TWaktu4Change(Sender: TObject);
    procedure TMat1Change(Sender: TObject);
    procedure TMat2Change(Sender: TObject);
    procedure TMat3Change(Sender: TObject);
    procedure TMat4Change(Sender: TObject);
    procedure TVolume1Change(Sender: TObject);
    procedure TVolume2Change(Sender: TObject);
    procedure TVolume3Change(Sender: TObject);
    procedure TVolume4Change(Sender: TObject);
    procedure CBSProduksiChange(Sender: TObject);
    procedure CBSKapasitasChange(Sender: TObject);
    procedure Button2Click(Sender: TObject);
    procedure TKebutuhanChange(Sender: TObject);
    procedure SBJarakChange(Sender: TObject);
    procedure Jarak1Change(Sender: TObject);
    procedure Jarak2Change(Sender: TObject);
    procedure Jarak3Change(Sender: TObject);
    procedure Jarak4Change(Sender: TObject);
```

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

Type
    RParameter = Record
      Generasi : Integer;
      Populasi : Integer;
      Pc : Real;
      Pm : Real;
    End;

    ROperasi = Record
      Lokasi : String[30];
      LokasiKe : Integer;
      Waktu : Real;
      Handling : String[30];
      HandlingKe : Integer;
      Volume : Real;
      Weight : Real;
    End;
    RItem = Record
      Nama : String[30];
      Material : String[30];
      Lambang : String[30];
      Produksi : Real;
      Kebutuhan : Real;
      Pendahulu : String[30];
      PendahuluKe : Integer;
      Level : Integer;
      JumOperasi : Integer;
      Operasi : Array[1..100] of ROperasi;
    End;
    RCase = Record
      JumItem : Integer;
      Item : Array[1..50] of RItem;
    End;

    RHandling2 = Record
      Nama : String[30];
      Cost : Real;
    End;
    RHandling = Record
      JumHandling : Integer;
      Handling : Array[1..100] of RHandling2;
    End;

    RLokasi2 = Record
      Nama : String[30];
      Lambang : String[30];
      Kapasitas : Real;
      Fraktal : Array[1..6] of Integer;
    End;
    RLokasi = Record
      JumLokasi : Integer;
      Lokasi : Array[1..100] of RLokasi2;
    End;

    ROptions = Record
      FraktalMaks : Integer;
      JumlahMaks : Integer;
      SProduksi : String[30];
      SKapasitas : String[30];
    End;

    RJarak = Record
      Dari : String[30];
```

```
  Ke : String[30];
  Jarak : Real;
  DataKe : Integer;
End;

RJarak2 = Record
  DariMesinKe : Integer;
  DariFraktalKe : Integer;
  DariNoMesinKe : Integer;
  KeMesinKe : Integer;
  KeFraktalKe : Integer;
  KeNoMesinKe : Integer;
  Available : Integer;
  Jarak : Real;
End;

RMesin = Record
  Dari : Integer;
  Ke : Integer;
End;
RPredec = Record
  ItemKe : Integer;
  ItemKeSort : Integer;
End;
ROpTotal2 = Record
  Item : String[30];
  ItemKe : Integer;
  Level : Integer;
  Produk : String[30];
  ProdukKe : Integer;
  TotalCost : Real;
  JumPredec : Integer;
  Predec : Array[1..20] of RPredec;
  JumMesin : Integer;
  Mesin : Array[1..50] of RMesin;
End;
ROpTotal = Record
  Item : Array[1..101] of ROpTotal2;
  JumItem : Integer;
End;

RProduk2 = Record
  Nama : String[30];
  TotalCost : Real;
End;

RProduk = Record
  JumProduk : Integer;
  Produk : Array[1..51] of RProduk2;
End;

RGen = Record
  Pm : Real;
  ItemKe : Integer;
  Produk : String[30];
  ProdukKe : Integer;
  OperasiKe : Integer;
  MesinKe : Integer;
  FraktalKe : Integer;
  NoMesinKe : Integer;
  Produksi : Real;
  Keluar : Real;
  Cost : Real;
End;
RKromosom = Record
  JumGen : Integer;
  Pc : Real;
  TotalCost : Real;
  Gen : Array[1..3501] of RGen;
End;
```

```
var
  FormInput: TFormInput;
  Parameter : RParameter;
  FParameter : File Of RParameter;
  Handling : RHandling;
  FHandling : File of RHandling;
  Lokasi : RLokasi;
  FLokasi : File of RLokasi;
  Kasus : RCase;
  FKasus : FIle of RCase;
  Options : ROptions;
  FOptions : File of ROptions;
  Jarak : RJarak2;
  FJarak, FJarak2 : File of RJarak2;
  JarakDummy : RJarak;
  FJarakDummy,FJarakDummy2 : File of RJarak;
  pilih : Integer;
  Produk : RProduk;

  OpTotal : ROpTotal;
  FOpTotal : File of ROpTotal;
  Kromosom : RKromosom;
  FKromosom : File of RKromosom;

  i,j,k,l,m,n : integer;
  DumyInt : integer;
  DumyReal : real;
  DumyString, DumyString2 : String;
  Test : Text;
  DumySB : Integer;

implementation

{$R *.dfm}

procedure TFormInput.BCaseClick(Sender: TObject);
Var Frekuensi : Integer;
    Smaller : Real;
begin
     System.Assign(FKasus,'Case\'+TCase.Text+'.kss');
     System.Rewrite(FKasus);
     for i := 1 to Kasus.JumItem do
     Begin
       Kasus.Item[i].PendahuluKe:=0;
       for j := 1 to Kasus.JumItem do
       if Kasus.Item[i].Pendahulu=Kasus.Item[j].Nama then
          Kasus.Item[i].PendahuluKe:=j;
     End;

     for i := 1 to Kasus.JumItem do
       for j := 1 to Kasus.Item[i].JumOperasi do
         for k := 1 to Lokasi.JumLokasi do
         if Kasus.Item[i].Operasi[j].Lokasi=Lokasi.Lokasi[k].Nama then
            Kasus.Item[i].Operasi[j].LokasiKe:=k;

     for i := 1 to Kasus.JumItem do
       for j := 1 to Kasus.Item[i].JumOperasi+1 do
         for k := 1 to Handling.JumHandling do
         if Kasus.Item[i].Operasi[j].Handling=Handling.Handling[k].Nama then
            Kasus.Item[i].Operasi[j].HandlingKe:=k;

     System.Reset(FKasus);
     System.Seek(FKasus,0);
     System.Write(FKasus,Kasus);
     System.Close(FKasus);

     System.Assign(FHandling,'Case\'+TCase.Text+'.han');
     System.Rewrite(FHandling);
     System.Reset(FHandling);
```

```
     System.Seek(FHandling,0);
     System.Write(FHandling,Handling);
     System.Close(FHandling);

     System.Assign(FLokasi,'Case\'+TCase.Text+'.lok');
     System.Rewrite(FLokasi);
     System.Reset(FLokasi);
     System.Seek(FLokasi,0);
     System.Write(FLokasi,Lokasi);
     System.Close(FLokasi);

     System.Assign(FOptions,'Case\'+TCase.Text+'.opt');
     System.Rewrite(FOptions);
     System.Reset(FOptions);
     System.Seek(FOptions,0);
     System.Write(FOptions,Options);
     System.Close(FOptions);


     System.Assign(Test,'Case\'+TCase.Text+'.txt');
     System.Rewrite(Test);
     System.Append(Test);
     System.Writeln(Test,'Summary untuk Kasus : ',TCase.Text);
     System.Writeln(Test);
     System.Writeln(Test,'Jumlah Item : ',Kasus.JumItem);

System.Writeln(Test,'Nama;Material;Lambang;Produksi;Kebutuhan;Pendahulu;PendahuluK
e;Level;JumOperasi;Operasi;Lokasi;LokasiKe;Waktu;Handling;HandlingKe;Volume;Weight
');
     for i := 1 to Kasus.JumItem do
     Begin
       if Kasus.Item[i].JumOperasi=0 then
       Begin
         System.Write(Test,Kasus.Item[i].Nama,';');
         System.Write(Test,Kasus.Item[i].Material,';');
         System.Write(Test,Kasus.Item[i].Lambang,';');
         Str(Kasus.Item[i].Produksi:0:2,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].Kebutuhan:0:2,DumyString);
         System.Write(Test,DumyString,';');
         System.Write(Test,Kasus.Item[i].Pendahulu,';');
         Str(Kasus.Item[i].PendahuluKe,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].Level,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].JumOperasi,DumyString);
         System.Write(Test,DumyString,';');
         System.Write(Test,';');
         System.Write(Test,';');
         System.Write(Test,';');
         System.Write(Test,';');
         System.Write(Test,Kasus.Item[i].Operasi[1].Handling,';');
         Str(Kasus.Item[i].Operasi[1].HandlingKe,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].Operasi[1].Volume:0:2,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].Operasi[1].Weight:0:2,DumyString);
         System.Writeln(Test,DumyString,';');
       End
       Else for j := 1 to Kasus.Item[i].JumOperasi+1 do
       Begin
         System.Write(Test,Kasus.Item[i].Nama,';');
         System.Write(Test,Kasus.Item[i].Material,';');
         System.Write(Test,Kasus.Item[i].Lambang,';');
         Str(Kasus.Item[i].Produksi:0:2,DumyString);
         System.Write(Test,DumyString,';');
         Str(Kasus.Item[i].Kebutuhan:0:2,DumyString);
         System.Write(Test,DumyString,';');
         System.Write(Test,Kasus.Item[i].Pendahulu,';');
         Str(Kasus.Item[i].PendahuluKe,DumyString);
```

```
          System.Write(Test,DumyString,';');
          Str(Kasus.Item[i].Level,DumyString);
          System.Write(Test,DumyString,';');
          Str(Kasus.Item[i].JumOperasi,DumyString);
          System.Write(Test,DumyString,';');
          Str(j,DumyString);
          System.Write(Test,DumyString,';');
          System.Write(Test,Kasus.Item[i].Operasi[j].Lokasi,';');
          Str(Kasus.Item[i].Operasi[j].LokasiKe,DumyString);
          System.Write(Test,DumyString,';');
          Str(Kasus.Item[i].Operasi[j].Waktu:0:2,DumyString);
          System.Write(Test,DumyString,';');
          System.Write(Test,Kasus.Item[i].Operasi[j].Handling,';');
          Str(Kasus.Item[i].Operasi[j].HandlingKe,DumyString);
          System.Write(Test,DumyString,';');
          Str(Kasus.Item[i].Operasi[j].Volume:0:2,DumyString);
          System.Write(Test,DumyString,';');
          Str(Kasus.Item[i].Operasi[j].Weight:0:2,DumyString);
          System.Writeln(Test,DumyString,';');
        End;
        System.Writeln(Test);
      End;

      System.Writeln(Test);
      System.Writeln(Test,'Jumlah Material Handling : ',Handling.JumHandling);
      System.Writeln(Test,'No;Nama;Cost');
      for i := 1 to Handling.JumHandling do
      Begin

System.Writeln(Test,i,';',Handling.Handling[i].Nama,';',Handling.Handling[i].Cost:
0:2);
      End;

      System.Writeln(Test);
      System.Writeln(Test,'Jumlah Lokasi : ',Lokasi.JumLokasi);
      System.Writeln(Test,'Nama;Lambang;Kapasitas;F1;F2;F3;F4;F5;F6');
      for i := 1 to Lokasi.JumLokasi do
      Begin

System.Write(Test,Lokasi.Lokasi[i].Nama,';',Lokasi.Lokasi[i].Lambang,';',Lokasi.Lo
kasi[i].Kapasitas:0:2,';');
        for j := 1 to 6 do System.Write(Test,Lokasi.Lokasi[i].Fraktal[j],';');
        System.Writeln(Test);
      End;

      System.Assign(FJarak,'Temp\Jarak.tmp');
      System.Reset(FJarak);
      System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
      System.Reset(FJarakDummy);
      System.Assign(FJarakDummy2,'Case\'+TCase.Text+'.jra');
      System.Rewrite(FJarakDummy2);
      System.Reset(FJarakDummy2);
      System.Writeln(Test);
      System.Writeln(Test,'Jumlah Perpindahan : ',System.FileSize(FJarakDummy));
      System.Writeln(Test,'No;Dari;Ke;Jarak;LokNum');
      for i := 1 to System.FileSize(FJarakDummy) do
      Begin
        System.Seek(FJarakDummy,i-1);
        System.Read(FJarakDummy,JarakDummy);

        System.Seek(FJarak,JarakDummy.DataKe-1);
        System.Read(FJarak,Jarak);
        Jarak.Jarak:=JarakDummy.Jarak;
        System.Seek(FJarak,JarakDummy.DataKe-1);
        System.Write(FJarak,Jarak);


System.Writeln(Test,i,';',JarakDummy.Dari,';',JarakDummy.Ke,';',JarakDummy.Jarak:0
:2,';',JarakDummy.DataKe);
        System.Seek(FJarakDummy2,i-1);
```

```
        System.Write(FJarakDummy2,JarakDummy);
      End;
      System.Close(FJarakDummy2);
      System.Close(FJarakDummy);
      System.Close(FJarak);

      System.Assign(FJarak,'Temp\Jarak.tmp');
      System.Reset(FJarak);
      System.Assign(FJarak2,'Case\'+TCase.Text+'.jrk');
      System.Rewrite(FJarak2);
      System.Reset(FJarak2);
      System.Writeln(Test);
      System.Writeln(Test,'Jumlah Perpindahan True : ',System.FileSize(FJarak));
      System.Writeln(Test,'No;Dari;Ke;Jarak;Availability');
      for i := 1 to System.FileSize(FJarak) do
      Begin
        System.Seek(FJarak,i-1);
        System.Read(FJarak,Jarak);
        System.Write(Test,i,';');
        System.Write(Test,Lokasi.Lokasi[Jarak.DariMesinKe].Lambang,'-
',Jarak.DariFraktalKe,'-',Jarak.DariNoMesinKe,';');
        System.Write(Test,Lokasi.Lokasi[Jarak.KeMesinKe].Lambang,'-
',Jarak.KeFraktalKe,'-',Jarak.KeNoMesinKe,';');
        System.Writeln(Test,Jarak.Jarak:0:2,';',Jarak.Available);
        System.Seek(FJarak2,i-1);
        System.Write(FJarak2,Jarak);
      End;
      System.Close(FJarak2);
      System.Close(FJarak);

      System.Close(Test);

      OpTotal.JumItem:=Kasus.JumItem;
      for i := 1 to OpTotal.JumItem do
      Begin
        OpTotal.Item[i].Item:=Kasus.Item[i].Nama;
        OpTotal.Item[i].ItemKe:=i;
        OpTotal.Item[i].Level:=Kasus.Item[i].Level;
        OpTotal.Item[i].TotalCost:=0;
        OpTotal.Item[i].JumMesin:=Kasus.Item[i].JumOperasi;
        DumyInt:=Kasus.Item[i].PendahuluKe;
        if DumyInt=0 then OpTotal.Item[i].Produk:=OpTotal.Item[i].Item
        Else
        Repeat
           if Kasus.Item[DumyInt].PendahuluKe=0 then
           Begin
             OpTotal.Item[i].Produk:=Kasus.Item[DumyInt].Nama;
             Break;
           End;
           DumyInt:=Kasus.Item[DumyInt].PendahuluKe;
        Until DumyInt=0;

        OpTotal.Item[i].JumPredec:=0;
        for j := 1 to Kasus.JumItem do
          if Kasus.Item[j].PendahuluKe=i then
          Begin
            OpTotal.Item[i].JumPredec:=OpTotal.Item[i].JumPredec+1;
            OpTotal.Item[i].Predec[OpTotal.Item[i].JumPredec].ItemKe:=j;
          End;

        for j := 1 to Kasus.Item[i].JumOperasi do
        Begin
          if (j=1) and (OpTotal.Item[i].JumPredec=0) then
          Begin
            if Kasus.Item[i].Operasi[j].Volume<=Kasus.Item[i].Operasi[j].Weight
then
               Smaller:=Kasus.Item[i].Operasi[j].Volume
            Else Smaller:=Kasus.Item[i].Operasi[j].Weight;
            Frekuensi:=round(Kasus.Item[i].Kebutuhan/Smaller);
            if Frekuensi<Kasus.Item[i].Kebutuhan/Smaller then
```

```
             Frekuensi:=Frekuensi+1;

OpTotal.Item[i].TotalCost:=OpTotal.Item[i].TotalCost+(Frekuensi*Handling.Handling[
Kasus.Item[i].Operasi[j].HandlingKe].Cost);
         End
         Else if (j=1) and (OpTotal.Item[i].JumPredec>0) then
         for k := 1 to OpTotal.Item[i].JumPredec do
         Begin
           if Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].JumOperasi=0 then
           Begin
             if
Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[1].Volume<=Kasus.Item[OpTotal
.Item[i].Predec[k].ItemKe].Operasi[1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[1].Volume
             Else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[1].Weight;

Frekuensi:=round(Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Kebutuhan/Smaller);
             if
Frekuensi<Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Kebutuhan/Smaller then
                Frekuensi:=Frekuensi+1;

OpTotal.Item[i].TotalCost:=OpTotal.Item[i].TotalCost+(Frekuensi*Handling.Handling[
Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[1].HandlingKe].Cost);
           End
           Else
           Begin
             if
Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Pr
edec[k].ItemKe].JumOperasi+1].Volume<=Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe]
.Operasi[Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].JumOperasi+1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[k].ItemKe].JumOperasi+1].Volume
             Else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[k].ItemKe].JumOperasi+1].Weight;

Frekuensi:=round(Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Produksi/Smaller);
             if
Frekuensi<Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Produksi/Smaller then
                Frekuensi:=Frekuensi+1;

OpTotal.Item[i].TotalCost:=OpTotal.Item[i].TotalCost+(Frekuensi*Handling.Handling[
Kasus.Item[OpTotal.Item[i].Predec[k].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Pr
edec[k].ItemKe].JumOperasi+1].HandlingKe].Cost);
           End;
         End
         Else if (j>1) then
         Begin
           if Kasus.Item[i].Operasi[j].Volume<=Kasus.Item[i].Operasi[j].Weight
then
              Smaller:=Kasus.Item[i].Operasi[j].Volume
           Else Smaller:=Kasus.Item[i].Operasi[j].Weight;
           Frekuensi:=round(Kasus.Item[i].Produksi/Smaller);
           if Frekuensi<Kasus.Item[i].Produksi/Smaller then
              Frekuensi:=Frekuensi+1;

OpTotal.Item[i].TotalCost:=OpTotal.Item[i].TotalCost+(Frekuensi*Handling.Handling[
Kasus.Item[i].Operasi[j].HandlingKe].Cost);
         End;
       End;
     End;

     Produk.JumProduk:=0;
     for i := 1 to OpTotal.JumItem do
     Begin
       if Produk.JumProduk=0 then
       Begin
```

```
          Produk.JumProduk:=Produk.JumProduk+1;
          Produk.Produk[Produk.JumProduk].Nama:=OpTotal.Item[i].Produk;
          Produk.Produk[Produk.JumProduk].TotalCost:=OpTotal.Item[i].TotalCost;
        End
        Else for j := 1 to Produk.JumProduk do
        if Produk.Produk[j].Nama=OpTotal.Item[i].Produk then
        Begin

Produk.Produk[j].TotalCost:=Produk.Produk[j].TotalCost+OpTotal.Item[i].TotalCost;
           Break;
        End
        Else if (j=Produk.JumProduk) and
(Produk.Produk[j].Nama<>OpTotal.Item[i].Produk) then
        Begin
          Produk.JumProduk:=Produk.JumProduk+1;
          Produk.Produk[Produk.JumProduk].Nama:=OpTotal.Item[i].Produk;
          Produk.Produk[Produk.JumProduk].TotalCost:=OpTotal.Item[i].TotalCost;
        End;
      End;

      for i := 1 to Produk.JumProduk - 1 do
        for j := i+1 to Produk.JumProduk do
        if Produk.Produk[i].TotalCost<Produk.Produk[j].TotalCost then
        Begin
          Produk.Produk[51]:=Produk.Produk[i];
          Produk.Produk[i]:=Produk.Produk[j];
          Produk.Produk[j]:=Produk.Produk[51];
        End;

      for i := 1 to OpTotal.JumItem do
        for j := 1 to Produk.JumProduk do
        if OpTotal.Item[i].Produk=Produk.Produk[j].Nama then
           OpTotal.Item[i].ProdukKe:=j;

      for i := 1 to OpTotal.JumItem - 1 do
        for j := i+1 to OpTotal.JumItem do
        if (OpTotal.Item[i].ProdukKe>OpTotal.Item[j].ProdukKe) or
((OpTotal.Item[i].ProdukKe=OpTotal.Item[j].ProdukKe) and
(OpTotal.Item[i].Level<OpTotal.Item[j].Level)) then
        Begin
          OpTotal.Item[101]:=OpTotal.Item[i];
          OpTotal.Item[i]:=OpTotal.Item[j];
          OpTotal.Item[j]:=OpTotal.Item[101];
        End;

      for i := 1 to OpTotal.JumItem do
        for j := 1 to OpTotal.Item[i].JumPredec do
          for k := 1 to OpTotal.JumItem do
          Begin
            if OpTotal.Item[i].Predec[j].ItemKe=OpTotal.Item[k].ItemKe then
            Begin
              OpTotal.Item[i].Predec[j].ItemKeSort:=k;
              Break;
            End;
          End;

      Kromosom.JumGen:=0;
      for i := 1 to OpTotal.JumItem do
      Begin
        if Kasus.Item[OpTotal.Item[i].ItemKe].JumOperasi=0 then
        Begin
          OpTotal.Item[i].Mesin[1].Dari:=Kromosom.JumGen+1;
          OpTotal.Item[i].Mesin[1].Ke:=Kromosom.JumGen+1;
          Kromosom.JumGen:=Kromosom.JumGen+1;
          Kromosom.Gen[Kromosom.JumGen].ItemKe:=OpTotal.Item[i].ItemKe;
          Kromosom.Gen[Kromosom.JumGen].Produk:=OpTotal.Item[i].Produk;
          Kromosom.Gen[Kromosom.JumGen].ProdukKe:=OpTotal.Item[i].ProdukKe;
          Kromosom.Gen[Kromosom.JumGen].OperasiKe:=0;
          Kromosom.Gen[Kromosom.JumGen].MesinKe:=0;
          Kromosom.Gen[Kromosom.JumGen].FraktalKe:=0;
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        Kromosom.Gen[Kromosom.JumGen].NoMesinKe:=0;
      End
      Else
      for j := 1 to Kasus.Item[OpTotal.Item[i].ItemKe].JumOperasi do
      Begin
        OpTotal.Item[i].Mesin[j].Dari:=Kromosom.JumGen+1;
        for k := 1 to 6 do
          for l := 1 to
Lokasi.Lokasi[Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].LokasiKe].Fraktal[k]
do
          Begin
            Kromosom.JumGen:=Kromosom.JumGen+1;
            Kromosom.Gen[Kromosom.JumGen].ItemKe:=OpTotal.Item[i].ItemKe;
            Kromosom.Gen[Kromosom.JumGen].Produk:=OpTotal.Item[i].Produk;
            Kromosom.Gen[Kromosom.JumGen].ProdukKe:=OpTotal.Item[i].ProdukKe;
            Kromosom.Gen[Kromosom.JumGen].OperasiKe:=j;

Kromosom.Gen[Kromosom.JumGen].MesinKe:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[
j].LokasiKe;
            Kromosom.Gen[Kromosom.JumGen].FraktalKe:=k;
            Kromosom.Gen[Kromosom.JumGen].NoMesinKe:=l;
          End;
        OpTotal.Item[i].Mesin[j].Ke:=Kromosom.JumGen;
      End;
    End;

    System.Assign(FOpTotal,'Case\'+TCase.Text+'.ott');
    System.Rewrite(FOpTotal);
    System.Reset(FOpTotal);
    System.Seek(FOpTotal,0);
    System.Write(FOpTotal,OpTotal);
    System.Close(FOpTotal);

    System.Assign(FKromosom,'Case\'+TCase.Text+'.krm');
    System.Rewrite(FKromosom);
    System.Reset(FKromosom);
    System.Seek(FKromosom,0);
    System.Write(FKromosom,Kromosom);
    System.Close(FKromosom);

    {System.Assign(Test,'Temp\Test.txt');
    System.Rewrite(Test);
    System.Append(Test);

System.Writeln(Test,'Item;ItemKe;Level;Produk;ProdukKe;JumPredec;Predec;Predec2;To
talCost;Operasi;Dari;Ke');
    for i := 1 to OpTotal.JumItem do
    Begin
      if OpTotal.Item[i].JumMesin=0 then
      Begin
        System.Write(Test,OpTotal.Item[i].Item,';');
        System.Write(Test,OpTotal.Item[i].ItemKe,';');
        System.Write(Test,OpTotal.Item[i].Level,';');
        System.Write(Test,OpTotal.Item[i].Produk,';');
        System.Write(Test,OpTotal.Item[i].ProdukKe,';');
        System.Write(Test,OpTotal.Item[i].JumPredec,';');
        for k := 1 to OpTotal.Item[i].JumPredec do
          System.Write(Test,OpTotal.Item[i].Predec[k].ItemKe,'-');
        System.Write(Test,';');
        for k := 1 to OpTotal.Item[i].JumPredec do
          System.Write(Test,OpTotal.Item[i].Predec[k].ItemKeSort,'-');
        System.Write(Test,';');
        System.Write(Test,OpTotal.Item[i].TotalCost:0:2,';');
        System.Write(Test,1,';');
        System.Write(Test,OpTotal.Item[i].Mesin[1].Dari,';');
        System.Writeln(Test,OpTotal.Item[i].Mesin[1].Ke);
      End
      Else for j := 1 to OpTotal.Item[i].JumMesin do
      Begin
        System.Write(Test,OpTotal.Item[i].Item,';');
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```
          System.Write(Test,OpTotal.Item[i].ItemKe,';');
          System.Write(Test,OpTotal.Item[i].Level,';');
          System.Write(Test,OpTotal.Item[i].Produk,';');
          System.Write(Test,OpTotal.Item[i].ProdukKe,';');
          System.Write(Test,OpTotal.Item[i].JumPredec,';');
          for k := 1 to OpTotal.Item[i].JumPredec do
            System.Write(Test,OpTotal.Item[i].Predec[k].ItemKe,'-');
          System.Write(Test,';');
          for k := 1 to OpTotal.Item[i].JumPredec do
            System.Write(Test,OpTotal.Item[i].Predec[k].ItemKeSort,'-');
          System.Write(Test,';');
          System.Write(Test,OpTotal.Item[i].TotalCost:0:2,';');
          System.Write(Test,j,';');
          System.Write(Test,OpTotal.Item[i].Mesin[j].Dari,';');
          System.Writeln(Test,OpTotal.Item[i].Mesin[j].Ke);
        End;
      End;
      System.Writeln(Test);
      System.Writeln(Test,'Item;ItemKe;Produk;ProdukKe;OperasiKe;Lokasi');
      for i := 1 to Kromosom.JumGen do
      Begin
        System.Write(Test,Kasus.Item[Kromosom.Gen[i].ItemKe].Nama,';');
        System.Write(Test,Kromosom.Gen[i].ItemKe,';');
        System.Write(Test,Kromosom.Gen[i].Produk,';');
        System.Write(Test,Kromosom.Gen[i].ProdukKe,';');
        System.Write(Test,Kromosom.Gen[i].OperasiKe,';');
        System.Write(Test,Lokasi.Lokasi[Kromosom.Gen[i].MesinKe].Nama,'-');
        System.Write(Test,Kromosom.Gen[i].FraktalKe,';');
        System.Writeln(Test,Kromosom.Gen[i].NoMesinKe);
      End;
      System.Close(Test);}

      TCase.Text:='';
end;

procedure TFormInput.BHandlingClick(Sender: TObject);
begin
      Val(TCost.Text,DumyReal,j);

      if Handling.JumHandling=0 then
      Begin
        Handling.JumHandling:=Handling.JumHandling+1;
        Handling.Handling[Handling.JumHandling].Nama:=THandling.Text;
        Val(TCost.Text,Handling.Handling[Handling.JumHandling].Cost,j);
        TMat1.Items.Append(THandling.Text);
        TMat2.Items.Append(THandling.Text);
        TMat3.Items.Append(THandling.Text);
        TMat4.Items.Append(THandling.Text);

        THandling.Text:='';
        TCost.Text:='';
      End
      Else for i := 1 to Handling.JumHandling do
      if (Handling.Handling[i].Nama=THandling.Text) and (DumyReal<0) then
      Begin
        for j := i to Handling.JumHandling - 1 do
          Handling.Handling[j]:=Handling.Handling[j+1];
        Handling.JumHandling:=Handling.JumHandling-1;
        TMat1.Items.Delete(i-1);
        TMat2.Items.Delete(i-1);
        TMat3.Items.Delete(i-1);
        TMat4.Items.Delete(i-1);

        THandling.Text:='';
        TCost.Text:='';
        Break;
      End
      else if (Handling.Handling[i].Nama=THandling.Text) and (DumyReal>=0) then
      Begin
        Val(TCost.Text,Handling.Handling[i].Cost,j);
```

```
      THandling.Text:='';
      TCost.Text:='';
      Break;
    End
    else if (i=Handling.JumHandling) and
(Handling.Handling[i].Nama<>THandling.Text) then
    Begin
      Handling.JumHandling:=Handling.JumHandling+1;
      Handling.Handling[Handling.JumHandling].Nama:=THandling.Text;
      Val(TCost.Text,Handling.Handling[Handling.JumHandling].Cost,j);
      TMat1.Items.Append(THandling.Text);
      TMat2.Items.Append(THandling.Text);
      TMat3.Items.Append(THandling.Text);
      TMat4.Items.Append(THandling.Text);

      THandling.Text:='';
      TCost.Text:='';
      Break;
    End;
end;

procedure TFormInput.BItemClick(Sender: TObject);
begin
    Val(TPindah.Text,DumyInt,j);

    if Kasus.JumItem=0 then
    Begin
      Kasus.JumItem:=Kasus.JumItem+1;
      Kasus.Item[Kasus.JumItem].Nama:=TItem.Text;
      Kasus.Item[Kasus.JumItem].Material:=TMaterial.Text;
      Kasus.Item[Kasus.JumItem].Lambang:=TLambang.Text;
      Val(TProduksi.Text,Kasus.Item[Kasus.JumItem].Produksi,j);
      Val(TKebutuhan.Text,Kasus.Item[Kasus.JumItem].Kebutuhan,j);
      Val(TPindah.Text,Kasus.Item[Kasus.JumItem].JumOperasi,j);
      Kasus.Item[Kasus.JumItem].Pendahulu:=TPendahulu.Text;
      if (T0.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=0;
      if (T1.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=1;
      if (T2.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=2;
      if (T3.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=3;
      if (T4.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=4;
      if (T5.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=5;
      CItem.Enabled:=True;
      CItem.Items.Append(TItem.Text);

      TItem.Text:='';
      TMaterial.Text:='';
      TLambang.Text:='';
      TProduksi.Text:='';
      TPindah.Text:='';
      TPendahulu.Text:='';
      T0.Checked:=True;
      TKebutuhan.Text:='';
    End

    Else
    for i := 1 to Kasus.JumItem do
    if (Kasus.Item[i].Nama=TItem.Text) and (DumyInt<0) then
    Begin
      for j := i to Kasus.JumItem - 1 do
        Kasus.Item[j]:=Kasus.Item[j+1];
      Kasus.JumItem:=Kasus.JumItem-1;
      CItem.Items.Delete(i-1);
      if Kasus.JumItem<=0 then CItem.Enabled:=False;

      TItem.Text:='';
      TMaterial.Text:='';
      TLambang.Text:='';
      TProduksi.Text:='';
      TPindah.Text:='';
```

```
      TPendahulu.Text:='';
      T0.Checked:=True;
      TKebutuhan.Text:='';
      Break;
    End
    Else if (Kasus.Item[i].Nama=TItem.Text) and (DumyInt>=0) then
    Begin
      Kasus.Item[i].Material:=TMaterial.Text;
      Kasus.Item[i].Lambang:=TLambang.Text;
      Val(TProduksi.Text,Kasus.Item[i].Produksi,j);
      Val(TKebutuhan.Text,Kasus.Item[i].Kebutuhan,j);
      Val(TPindah.Text,Kasus.Item[i].JumOperasi,j);
      Kasus.Item[i].Pendahulu:=TPendahulu.Text;
      if (T0.Checked=True) then Kasus.Item[i].Level:=0;
      if (T1.Checked=True) then Kasus.Item[i].Level:=1;
      if (T2.Checked=True) then Kasus.Item[i].Level:=2;
      if (T3.Checked=True) then Kasus.Item[i].Level:=3;
      if (T4.Checked=True) then Kasus.Item[i].Level:=4;
      if (T5.Checked=True) then Kasus.Item[i].Level:=5;

      TItem.Text:='';
      TMaterial.Text:='';
      TLambang.Text:='';
      TProduksi.Text:='';
      TPindah.Text:='';
      TPendahulu.Text:='';
      T0.Checked:=True;
      TKebutuhan.Text:='';
      Break;
    End
    Else if (i=Kasus.JumItem) and (Kasus.Item[i].Nama<>TItem.Text) then
    Begin
      Kasus.JumItem:=Kasus.JumItem+1;
      Kasus.Item[Kasus.JumItem].Nama:=TItem.Text;
      Kasus.Item[Kasus.JumItem].Material:=TMaterial.Text;
      Kasus.Item[Kasus.JumItem].Lambang:=TLambang.Text;
      Val(TProduksi.Text,Kasus.Item[Kasus.JumItem].Produksi,j);
      Val(TKebutuhan.Text,Kasus.Item[Kasus.JumItem].Kebutuhan,j);
      Val(TPindah.Text,Kasus.Item[Kasus.JumItem].JumOperasi,j);
      Kasus.Item[Kasus.JumItem].Pendahulu:=TPendahulu.Text;
      if (T0.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=0;
      if (T1.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=1;
      if (T2.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=2;
      if (T3.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=3;
      if (T4.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=4;
      if (T5.Checked=True) then Kasus.Item[Kasus.JumItem].Level:=5;
      CItem.Enabled:=True;
      CItem.Items.Append(TItem.Text);

      TItem.Text:='';
      TMaterial.Text:='';
      TLambang.Text:='';
      TProduksi.Text:='';
      TPindah.Text:='';
      TPendahulu.Text:='';
      T0.Checked:=True;
      TKebutuhan.Text:='';
      Break;
    End;
end;

procedure TFormInput.BLoadClick(Sender: TObject);
begin
    System.Assign(FKasus,'Case\'+TCase.Text+'.kss');
    System.Reset(FKasus);
    System.Seek(FKasus,0);
    System.Read(FKasus,Kasus);
    CItem.Items.Clear;
    for i := 1 to Kasus.JumItem do
      CItem.Items.Append(Kasus.Item[i].Nama);
```

```
if Kasus.JumItem>0 then CItem.Enabled:=True;

System.Close(FKasus);

System.Assign(FHandling,'Case\'+TCase.Text+'.han');
System.Reset(FHandling);
System.Seek(FHandling,0);
System.Read(FHandling,Handling);
TMat1.Items.Clear;
TMat2.Items.Clear;
TMat3.Items.Clear;
TMat4.Items.Clear;
for i := 1 to Handling.JumHandling do
Begin
  TMat1.Items.Append(Handling.Handling[i].Nama);
  TMat2.Items.Append(Handling.Handling[i].Nama);
  TMat3.Items.Append(Handling.Handling[i].Nama);
  TMat4.Items.Append(Handling.Handling[i].Nama);
End;
System.Close(FHandling);

System.Assign(FLokasi,'Case\'+TCase.Text+'.lok');
System.Reset(FLokasi);
System.Seek(FLokasi,0);
System.Read(FLokasi,Lokasi);
TLokasi1.Items.Clear;
TLokasi2.Items.Clear;
TLokasi3.Items.Clear;
TLokasi4.Items.Clear;
for i := 1 to Lokasi.JumLokasi do
Begin
  TLokasi1.Items.Append(Lokasi.Lokasi[i].Nama);
  TLokasi2.Items.Append(Lokasi.Lokasi[i].Nama);
  TLokasi3.Items.Append(Lokasi.Lokasi[i].Nama);
  TLokasi4.Items.Append(Lokasi.Lokasi[i].Nama);
End;
System.Close(FLokasi);

System.Assign(FOptions,'Case\'+TCase.Text+'.opt');
System.Reset(FOptions);
System.Seek(FOptions,0);
System.Read(FOptions,Options);
CBSProduksi.Text:=Options.SProduksi;
CBSKapasitas.Text:=Options.SKapasitas;
System.Close(FOptions);

System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
System.Rewrite(FJarakDummy);
System.Reset(FJarakDummy);
System.Assign(FJarakDummy2,'Case\'+TCase.Text+'.jra');
System.Reset(FJarakDummy2);
for i := 1 to System.FileSize(FJarakDummy2) do
Begin
  System.Seek(FJarakDummy2,i-1);
  System.Read(FJarakDummy2,JarakDummy);
  System.Seek(FJarakDummy,i-1);
  System.Write(FJarakDummy,JarakDummy);
End;
System.Close(FJarakDummy2);
n:=System.FileSize(FJarakDummy);
System.Close(FJarakDummy);

System.Assign(FJarak,'Temp\Jarak.tmp');
System.Rewrite(FJarak);
System.Reset(FJarak);
System.Assign(FJarak2,'Case\'+TCase.Text+'.jrk');
System.Reset(FJarak2);
for i := 1 to System.FileSize(FJarak2) do
Begin
  System.Seek(FJarak2,i-1);
```

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  System.Read(FJarak2,Jarak);
  System.Seek(FJarak,i-1);
  System.Write(FJarak,Jarak);
End;
System.Close(FJarak2);
System.Close(FJarak);

DumySB:=0;
SBJarak.Position:=1;
SBJarak.Enabled:=False;

if n>=1 then
Begin
  System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
  System.Reset(FJarakDummy);
  System.Seek(FJarakDummy,1-1);
  System.Read(FJarakDummy,JarakDummy);
  System.Close(FJarakDummy);

  From1.Text:=JarakDummy.Dari;
  To1.Text:=JarakDummy.Ke;
  Str(JarakDummy.Jarak:0:2,DumyString);
  Jarak1.Text:=DumyString;
  Jarak1.Enabled:=True;
End;
if n>=2 then
Begin
  System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
  System.Reset(FJarakDummy);
  System.Seek(FJarakDummy,2-1);
  System.Read(FJarakDummy,JarakDummy);
  System.Close(FJarakDummy);

  From2.Text:=JarakDummy.Dari;
  To2.Text:=JarakDummy.Ke;
  Str(JarakDummy.Jarak:0:2,DumyString);
  Jarak2.Text:=DumyString;
  Jarak2.Enabled:=True;
End;
if n>=3 then
Begin
  System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
  System.Reset(FJarakDummy);
  System.Seek(FJarakDummy,3-1);
  System.Read(FJarakDummy,JarakDummy);
  System.Close(FJarakDummy);

  From3.Text:=JarakDummy.Dari;
  To3.Text:=JarakDummy.Ke;
  Str(JarakDummy.Jarak:0:2,DumyString);
  Jarak3.Text:=DumyString;
  Jarak3.Enabled:=True;
End;
if n>=4 then
Begin
  System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
  System.Reset(FJarakDummy);
  System.Seek(FJarakDummy,4-1);
  System.Read(FJarakDummy,JarakDummy);
  System.Close(FJarakDummy);

  From4.Text:=JarakDummy.Dari;
  To4.Text:=JarakDummy.Ke;
  Str(JarakDummy.Jarak:0:2,DumyString);
  Jarak4.Text:=DumyString;
  Jarak4.Enabled:=True;
End;

if n>4 then
Begin
```

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        SBJarak.Position:=1;
        SBJarak.Min:=1;
        SBJarak.Max:=n-3;
        SBJarak.SmallChange:=1;
        SBJarak.LargeChange:=3;
        SBJarak.Enabled:=True;
        DumySB:=1;
      End;

      TCase.Text:='';
end;

procedure TFormInput.BLokasiClick(Sender: TObject);
begin
      Val(TKapasitas.Text,DumyReal,j);
      if Lokasi.JumLokasi=0 then
      Begin
        Lokasi.JumLokasi:=Lokasi.JumLokasi+1;
        Lokasi.Lokasi[Lokasi.JumLokasi].Nama:=TLokasi.Text;
        Lokasi.Lokasi[Lokasi.JumLokasi].Lambang:=TLLokasi.Text;
        Val(TKapasitas.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Kapasitas,j);
        if C1.Checked=True then
Val(TC1.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[1],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[1]:=0;
        if C2.Checked=True then
Val(TC2.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[2],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[2]:=0;
        if C3.Checked=True then
Val(TC3.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[3],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[3]:=0;
        if C4.Checked=True then
Val(TC4.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[4],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[4]:=0;
        if C5.Checked=True then
Val(TC5.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[5],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[5]:=0;
        if C6.Checked=True then
Val(TC6.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[6],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[6]:=0;
        TLokasi1.Items.Append(TLokasi.Text);
        TLokasi2.Items.Append(TLokasi.Text);
        TLokasi3.Items.Append(TLokasi.Text);
        TLokasi4.Items.Append(TLokasi.Text);

        TLokasi.Text:='';
        TLLokasi.Text:='';
        TKapasitas.Text:='';
        C1.Checked:=False; TC1.Text:='';
        C2.Checked:=False; TC2.Text:='';
        C3.Checked:=False; TC3.Text:='';
        C4.Checked:=False; TC4.Text:='';
        C5.Checked:=False; TC5.Text:='';
        C6.Checked:=False; TC6.Text:='';
      End
      Else for i := 1 to Lokasi.JumLokasi do
      if (Lokasi.Lokasi[i].Nama=TLokasi.Text) and (DumyReal<=0) then
      Begin
        for j := i to Lokasi.JumLokasi - 1 do
            Lokasi.Lokasi[j]:=Lokasi.Lokasi[j+1];
        Lokasi.JumLokasi:=Lokasi.JumLokasi-1;
        TLokasi1.Items.Delete(i-1);
        TLokasi2.Items.Delete(i-1);
        TLokasi3.Items.Delete(i-1);
        TLokasi4.Items.Delete(i-1);

        TLokasi.Text:='';
        TLLokasi.Text:='';
        TKapasitas.Text:='';
        C1.Checked:=False; TC1.Text:='';
        C2.Checked:=False; TC2.Text:='';
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       C3.Checked:=False; TC3.Text:='';
       C4.Checked:=False; TC4.Text:='';
       C5.Checked:=False; TC5.Text:='';
       C6.Checked:=False; TC6.Text:='';
       Break;
     End
     Else if (Lokasi.Lokasi[i].Nama=TLokasi.Text) and (DumyReal>0) then
     Begin
       Lokasi.Lokasi[i].Lambang:=TLLokasi.Text;
       Val(TKapasitas.Text,Lokasi.Lokasi[i].Kapasitas,j);
       if C1.Checked=True then Val(TC1.Text,Lokasi.Lokasi[i].Fraktal[1],j) Else
Lokasi.Lokasi[i].Fraktal[1]:=0;
       if C2.Checked=True then Val(TC2.Text,Lokasi.Lokasi[i].Fraktal[2],j) Else
Lokasi.Lokasi[i].Fraktal[2]:=0;
       if C3.Checked=True then Val(TC3.Text,Lokasi.Lokasi[i].Fraktal[3],j) Else
Lokasi.Lokasi[i].Fraktal[3]:=0;
       if C4.Checked=True then Val(TC4.Text,Lokasi.Lokasi[i].Fraktal[4],j) Else
Lokasi.Lokasi[i].Fraktal[4]:=0;
       if C5.Checked=True then Val(TC5.Text,Lokasi.Lokasi[i].Fraktal[5],j) Else
Lokasi.Lokasi[i].Fraktal[5]:=0;
       if C6.Checked=True then Val(TC6.Text,Lokasi.Lokasi[i].Fraktal[6],j) Else
Lokasi.Lokasi[i].Fraktal[6]:=0;

       TLokasi.Text:='';
       TLLokasi.Text:='';
       TKapasitas.Text:='';
       C1.Checked:=False; TC1.Text:='';
       C2.Checked:=False; TC2.Text:='';
       C3.Checked:=False; TC3.Text:='';
       C4.Checked:=False; TC4.Text:='';
       C5.Checked:=False; TC5.Text:='';
       C6.Checked:=False; TC6.Text:='';
       Break;
     End
     Else if (Lokasi.Lokasi[i].Nama<>TLokasi.Text) and (i=Lokasi.JumLokasi) then
     Begin
       Lokasi.JumLokasi:=Lokasi.JumLokasi+1;
       Lokasi.Lokasi[Lokasi.JumLokasi].Nama:=TLokasi.Text;
       Lokasi.Lokasi[Lokasi.JumLokasi].Lambang:=TLLokasi.Text;
       Val(TKapasitas.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Kapasitas,j);
       if C1.Checked=True then
Val(TC1.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[1],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[1]:=0;
       if C2.Checked=True then
Val(TC2.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[2],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[2]:=0;
       if C3.Checked=True then
Val(TC3.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[3],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[3]:=0;
       if C4.Checked=True then
Val(TC4.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[4],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[4]:=0;
       if C5.Checked=True then
Val(TC5.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[5],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[5]:=0;
       if C6.Checked=True then
Val(TC6.Text,Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[6],j) Else
Lokasi.Lokasi[Lokasi.JumLokasi].Fraktal[6]:=0;
       TLokasi1.Items.Append(TLokasi.Text);
       TLokasi2.Items.Append(TLokasi.Text);
       TLokasi3.Items.Append(TLokasi.Text);
       TLokasi4.Items.Append(TLokasi.Text);

       TLokasi.Text:='';
       TLLokasi.Text:='';
       TKapasitas.Text:='';
       C1.Checked:=False; TC1.Text:='';
       C2.Checked:=False; TC2.Text:='';
       C3.Checked:=False; TC3.Text:='';
       C4.Checked:=False; TC4.Text:='';
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       C5.Checked:=False; TC5.Text:='';
       C6.Checked:=False; TC6.Text:='';
       Break;
     End;
end;

procedure TFormInput.Button1Click(Sender: TObject);
begin
     Close;
end;

procedure TFormInput.Button2Click(Sender: TObject);
begin
     Options.FraktalMaks:=0;
     Options.JumlahMaks:=0;
     for i := 1 to Lokasi.JumLokasi do
     Begin
       if (Lokasi.Lokasi[i].Fraktal[1]>0) and (Options.FraktalMaks<1) then
Options.FraktalMaks:=1;
       if (Lokasi.Lokasi[i].Fraktal[2]>0) and (Options.FraktalMaks<2) then
Options.FraktalMaks:=2;
       if (Lokasi.Lokasi[i].Fraktal[3]>0) and (Options.FraktalMaks<3) then
Options.FraktalMaks:=3;
       if (Lokasi.Lokasi[i].Fraktal[4]>0) and (Options.FraktalMaks<4) then
Options.FraktalMaks:=4;
       if (Lokasi.Lokasi[i].Fraktal[5]>0) and (Options.FraktalMaks<5) then
Options.FraktalMaks:=5;
       if (Lokasi.Lokasi[i].Fraktal[6]>0) and (Options.FraktalMaks<6) then
Options.FraktalMaks:=6;
       if (Lokasi.Lokasi[i].Fraktal[1]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[1];
       if (Lokasi.Lokasi[i].Fraktal[2]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[2];
       if (Lokasi.Lokasi[i].Fraktal[3]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[3];
       if (Lokasi.Lokasi[i].Fraktal[4]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[4];
       if (Lokasi.Lokasi[i].Fraktal[5]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[5];
       if (Lokasi.Lokasi[i].Fraktal[6]>Options.JumlahMaks) then
Options.JumlahMaks:=Lokasi.Lokasi[i].Fraktal[6];
     End;
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Rewrite(FJarakDummy);
     System.Assign(FJarak,'Temp\Jarak.tmp');
     System.Rewrite(FJarak);


     for i := 1 to Lokasi.JumLokasi do
       for j := 1 to Options.FraktalMaks do
         for k := 1 to Options.JumlahMaks do
         Begin
           Jarak.DariMesinKe:=0;
           Jarak.DariFraktalKe:=0;
           Jarak.DariNoMesinKe:=0;
           Jarak.KeMesinKe:=i;
           Jarak.KeFraktalKe:=j;
           Jarak.KeNoMesinKe:=k;
           Jarak.Jarak:=0;
           if (Lokasi.Lokasi[i].Fraktal[j]>0) and (Lokasi.Lokasi[i].Fraktal[j]>=k)
then
              Jarak.Available:=1
           Else Jarak.Available:=0;
           System.Seek(FJarak,System.FileSize(FJarak));
           System.Write(FJarak,Jarak);
         End;

     for i := 1 to Lokasi.JumLokasi do
       for j := 1 to Options.FraktalMaks do
         for k := 1 to Options.JumlahMaks do
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          for l := 1 to Lokasi.JumLokasi do
            for m := 1 to Options.FraktalMaks do
              for n := 1 to Options.JumlahMaks do
              Begin
                Jarak.DariMesinKe:=i;
                Jarak.DariFraktalKe:=j;
                Jarak.DariNoMesinKe:=k;
                Jarak.KeMesinKe:=l;
                Jarak.KeFraktalKe:=m;
                Jarak.KeNoMesinKe:=n;
                Jarak.Jarak:=0;
                if (Lokasi.Lokasi[i].Fraktal[j]>0) and
(Lokasi.Lokasi[i].Fraktal[j]>=k) and
                   (Lokasi.Lokasi[l].Fraktal[m]>0) and
(Lokasi.Lokasi[l].Fraktal[m]>=n) then
                   Jarak.Available:=1
                Else Jarak.Available:=0;
                System.Seek(FJarak,System.FileSize(FJarak));
                System.Write(FJarak,Jarak);
              End;

    for i := 1 to System.FileSize(FJarak) do
    Begin
      System.Seek(FJarak,i-1);
      System.Read(FJarak,Jarak);
      if Jarak.Available=1 then
      Begin
        Str(Jarak.DariFraktalKe,DumyString);
        Str(Jarak.DariNoMesinKe,DumyString2);
        if Jarak.DariMesinKe>0 Then
JarakDummy.Dari:=Lokasi.Lokasi[Jarak.DariMesinKe].Lambang+'-'+DumyString+'-
'+DumyString2
                              Else JarakDummy.Dari:='0-'+DumyString+'-
'+DumyString2;
        Str(Jarak.KeFraktalKe,DumyString);
        Str(Jarak.KeNoMesinKe,DumyString2);
        if Jarak.KeMesinKe>0 Then
JarakDummy.Ke:=Lokasi.Lokasi[Jarak.KeMesinKe].Lambang+'-'+DumyString+'-
'+DumyString2
                             Else JarakDummy.Ke:='0-'+DumyString+'-'+DumyString2;
        JarakDummy.DataKe:=i;
        JarakDummy.Jarak:=0;
        System.Seek(FJarakDummy,System.FileSize(FJarakDummy));
        System.Write(FJarakDummy,JarakDummy);
      End;
    End;
    System.Close(FJarak);

    From1.Text:=''; To1.Text:=''; Jarak1.Text:=''; Jarak1.Enabled:=False;
    From2.Text:=''; To2.Text:=''; Jarak2.Text:=''; Jarak2.Enabled:=False;
    From3.Text:=''; To3.Text:=''; Jarak3.Text:=''; Jarak3.Enabled:=False;
    From4.Text:=''; To4.Text:=''; Jarak4.Text:=''; Jarak4.Enabled:=False;

    System.Reset(FJarakDummy);
    n:=System.FileSize(FJarakDummy);

    System.Close(FJarakDummy);

    DumySB:=0;
    SBJarak.Position:=1;
    SBJarak.Enabled:=False;

    if n>=1 then
    Begin
      System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
      System.Reset(FJarakDummy);
      System.Seek(FJarakDummy,1-1);
      System.Read(FJarakDummy,JarakDummy);
      System.Close(FJarakDummy);
```

```
        From1.Text:=JarakDummy.Dari;
        To1.Text:=JarakDummy.Ke;
        Str(JarakDummy.Jarak:0:2,DumyString);
        Jarak1.Text:=DumyString;
        Jarak1.Enabled:=True;
      End;
      if n>=2 then
      Begin
        System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
        System.Reset(FJarakDummy);
        System.Seek(FJarakDummy,2-1);
        System.Read(FJarakDummy,JarakDummy);
        System.Close(FJarakDummy);

        From2.Text:=JarakDummy.Dari;
        To2.Text:=JarakDummy.Ke;
        Str(JarakDummy.Jarak:0:2,DumyString);
        Jarak2.Text:=DumyString;
        Jarak2.Enabled:=True;
      End;
      if n>=3 then
      Begin
        System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
        System.Reset(FJarakDummy);
        System.Seek(FJarakDummy,3-1);
        System.Read(FJarakDummy,JarakDummy);
        System.Close(FJarakDummy);

        From3.Text:=JarakDummy.Dari;
        To3.Text:=JarakDummy.Ke;
        Str(JarakDummy.Jarak:0:2,DumyString);
        Jarak3.Text:=DumyString;
        Jarak3.Enabled:=True;
      End;
      if n>=4 then
      Begin
        System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
        System.Reset(FJarakDummy);
        System.Seek(FJarakDummy,4-1);
        System.Read(FJarakDummy,JarakDummy);
        System.Close(FJarakDummy);

        From4.Text:=JarakDummy.Dari;
        To4.Text:=JarakDummy.Ke;
        Str(JarakDummy.Jarak:0:2,DumyString);
        Jarak4.Text:=DumyString;
        Jarak4.Enabled:=True;
      End;

      if n>4 then
      Begin
        SBJarak.Position:=1;
        SBJarak.Min:=1;
        SBJarak.Max:=n-3;
        SBJarak.SmallChange:=1;
        SBJarak.LargeChange:=3;
        SBJarak.Enabled:=True;
        DumySB:=1;
      End;

end;

procedure TFormInput.C1Click(Sender: TObject);
begin
      if C1.Checked=True then TC1.Enabled:=True
      Else TC1.Enabled:=False;
end;

procedure TFormInput.C2Click(Sender: TObject);
begin
```

```
     if C2.Checked=True then TC2.Enabled:=True
     Else TC2.Enabled:=False;
end;

procedure TFormInput.C3Click(Sender: TObject);
begin
     if C3.Checked=True then TC3.Enabled:=True
     Else TC3.Enabled:=False;
end;

procedure TFormInput.C4Click(Sender: TObject);
begin
     if C4.Checked=True then TC4.Enabled:=True
     Else TC4.Enabled:=False;
end;

procedure TFormInput.C5Click(Sender: TObject);
begin
     if C5.Checked=True then TC5.Enabled:=True
     Else TC5.Enabled:=False;
end;

procedure TFormInput.C6Click(Sender: TObject);
begin
     if C6.Checked=True then TC6.Enabled:=True
     Else TC6.Enabled:=False;
end;

procedure TFormInput.CBSKapasitasChange(Sender: TObject);
begin
     Options.SKapasitas:=CBSKapasitas.Text;
end;

procedure TFormInput.CBSProduksiChange(Sender: TObject);
begin
     Options.SProduksi:=CBSProduksi.Text;
end;

procedure TFormInput.CItemChange(Sender: TObject);
begin
     pilih:=0;
     SB.Position:=1;
     SB.Enabled:=False;

     TLokasi1.Enabled:=False; TWaktu1.Enabled:=False; TMat1.Enabled:=False;
TVolume1.Enabled:=False; TWeight1.Enabled:=False;
     TLokasi2.Enabled:=False; TWaktu2.Enabled:=False; TMat2.Enabled:=False;
TVolume2.Enabled:=False; TWeight2.Enabled:=False;
     TLokasi3.Enabled:=False; TWaktu3.Enabled:=False; TMat3.Enabled:=False;
TVolume3.Enabled:=False; TWeight3.Enabled:=False;
     TLokasi4.Enabled:=False; TWaktu4.Enabled:=False; TMat4.Enabled:=False;
TVolume4.Enabled:=False; TWeight4.Enabled:=False;

     TLokasi1.Text:=''; TWaktu1.Text:=''; TMat1.Text:=''; TVolume1.Text:='';
TWeight1.Text:='';
     TLokasi2.Text:=''; TWaktu2.Text:=''; TMat2.Text:=''; TVolume2.Text:='';
TWeight2.Text:='';
     TLokasi3.Text:=''; TWaktu3.Text:=''; TMat3.Text:=''; TVolume3.Text:='';
TWeight3.Text:='';
     TLokasi4.Text:=''; TWaktu4.Text:=''; TMat4.Text:=''; TVolume4.Text:='';
TWeight4.Text:='';
     No1.Text:=''; No2.Text:=''; No3.Text:=''; No4.Text:='';

     for i := 1 to Kasus.JumItem do
       if Kasus.Item[i].Nama=CItem.Text then pilih:=i;

     if Kasus.Item[Pilih].JumOperasi+1>=1 then
     Begin
          SB.Position:=1;
          SB.Enabled:=False;
```

```
      No1.Text:='1';
      TLokasi1.Enabled:=True;
      TLokasi1.Text:=Kasus.Item[Pilih].Operasi[1].Lokasi;
      TWaktu1.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[1].Waktu:0:2,DumyString);
      TWaktu1.Text:=DumyString;
      TMat1.Enabled:=True;
      TMat1.Text:=Kasus.Item[Pilih].Operasi[1].Handling;
      TVolume1.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[1].Volume:0:2,DumyString);
      TVolume1.Text:=DumyString;
      TWeight1.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[1].Weight:0:2,DumyString);
      TWeight1.Text:=DumyString;
End;
if Kasus.Item[Pilih].JumOperasi+1>=2 then
Begin
      SB.Position:=1;
      SB.Enabled:=False;
      No2.Text:='2';
      TLokasi2.Enabled:=True;
      TLokasi2.Text:=Kasus.Item[Pilih].Operasi[2].Lokasi;
      TWaktu2.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[2].Waktu:0:2,DumyString);
      TWaktu2.Text:=DumyString;
      TMat2.Enabled:=True;
      TMat2.Text:=Kasus.Item[Pilih].Operasi[2].Handling;
      TVolume2.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[2].Volume:0:2,DumyString);
      TVolume2.Text:=DumyString;
      TWeight2.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[2].Weight:0:2,DumyString);
      TWeight2.Text:=DumyString;
End;
if Kasus.Item[Pilih].JumOperasi+1>=3 then
Begin
      SB.Position:=1;
      SB.Enabled:=False;
      No3.Text:='3';
      TLokasi3.Enabled:=True;
      TLokasi3.Text:=Kasus.Item[Pilih].Operasi[3].Lokasi;
      TWaktu3.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[3].Waktu:0:2,DumyString);
      TWaktu3.Text:=DumyString;
      TMat3.Enabled:=True;
      TMat3.Text:=Kasus.Item[Pilih].Operasi[3].Handling;
      TVolume3.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[3].Volume:0:2,DumyString);
      TVolume3.Text:=DumyString;
      TWeight3.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[3].Weight:0:2,DumyString);
      TWeight3.Text:=DumyString;
End;
if Kasus.Item[Pilih].JumOperasi+1>=4 then
Begin
      SB.Position:=1;
      SB.Enabled:=False;
      No4.Text:='4';
      TLokasi4.Enabled:=True;
      TLokasi4.Text:=Kasus.Item[Pilih].Operasi[4].Lokasi;
      TWaktu4.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[4].Waktu:0:2,DumyString);
      TWaktu4.Text:=DumyString;
      TMat4.Enabled:=True;
      TMat4.Text:=Kasus.Item[Pilih].Operasi[4].Handling;
      TVolume4.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[4].Volume:0:2,DumyString);
      TVolume4.Text:=DumyString;
      TWeight4.Enabled:=True;
      Str(Kasus.Item[Pilih].Operasi[4].Weight:0:2,DumyString);
```

```
          TWeight4.Text:=DumyString;
     End;
     if Kasus.Item[Pilih].JumOperasi+1>4 then
     Begin
          SB.Position:=1;
          SB.Min:=1;
          SB.Max:=Kasus.Item[Pilih].JumOperasi+1-3;
          SB.SmallChange:=1;
          SB.LargeChange:=3;
          SB.Enabled:=True;
     End;
end;

procedure TFormInput.FormCreate(Sender: TObject);
begin
     SB.Enabled:=False;
     CItem.Items.Clear;
     TLokasi1.Items.Clear;
     TLokasi2.Items.Clear;
     TLokasi3.Items.Clear;
     TLokasi4.Items.Clear;
     TMat1.Items.Clear;
     TMat2.Items.Clear;
     TMat3.Items.Clear;
     TMat4.Items.Clear;
     Kasus.JumItem:=0;
     Handling.JumHandling:=0;
     Lokasi.JumLokasi:=0;
     CBSProduksi.Items.Append('Unit per Minggu');
     CBSProduksi.Items.Append('Lot per Bulan');
     CBSKapasitas.Items.Append('Detik per Minggu');
     CBSKapasitas.Items.Append('Menit per Bulan');
end;

procedure TFormInput.Jarak1Change(Sender: TObject);
begin
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);

     System.Seek(FJarakDummy,SBJarak.Position+1-1-1);
     System.Read(FJarakDummy,JarakDummy);

     Val(Jarak1.Text,JarakDummy.Jarak,i);

     System.Seek(FJarakDummy,SBJarak.Position+1-1-1);
     System.Write(FJarakDummy,JarakDummy);

     System.Close(FJarakDummy);
end;

procedure TFormInput.Jarak2Change(Sender: TObject);
begin
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);

     System.Seek(FJarakDummy,SBJarak.Position+2-1-1);
     System.Read(FJarakDummy,JarakDummy);

     Val(Jarak2.Text,JarakDummy.Jarak,i);

     System.Seek(FJarakDummy,SBJarak.Position+2-1-1);
     System.Write(FJarakDummy,JarakDummy);

     System.Close(FJarakDummy);
end;

procedure TFormInput.Jarak3Change(Sender: TObject);
begin
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);
```

```
     System.Seek(FJarakDummy,SBJarak.Position+3-1-1);
     System.Read(FJarakDummy,JarakDummy);

     Val(Jarak3.Text,JarakDummy.Jarak,i);

     System.Seek(FJarakDummy,SBJarak.Position+3-1-1);
     System.Write(FJarakDummy,JarakDummy);

     System.Close(FJarakDummy);
end;

procedure TFormInput.Jarak4Change(Sender: TObject);
begin
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);

     System.Seek(FJarakDummy,SBJarak.Position+4-1-1);
     System.Read(FJarakDummy,JarakDummy);

     Val(Jarak4.Text,JarakDummy.Jarak,i);

     System.Seek(FJarakDummy,SBJarak.Position+4-1-1);
     System.Write(FJarakDummy,JarakDummy);

     System.Close(FJarakDummy);
end;

procedure TFormInput.PSaveClick(Sender: TObject);
begin
     System.Assign(FParameter,'Parameter\'+TPSave.Text+'.prm');
     Rewrite(FParameter);
     System.Seek(FParameter,0);
     Write(FParameter,Parameter);
     System.Close(FParameter);
     TPSave.Text:='';
end;

procedure TFormInput.SBChange(Sender: TObject);
begin
     Str(SB.Position,DumyString);
     No1.Text:=DumyString;
     Str(SB.Position+1,DumyString);
     No2.Text:=DumyString;
     Str(SB.Position+2,DumyString);
     No3.Text:=DumyString;
     Str(SB.Position+3,DumyString);
     No4.Text:=DumyString;
     TLokasi1.Text:=Kasus.Item[Pilih].Operasi[SB.Position+1-1].Lokasi;
     TLokasi2.Text:=Kasus.Item[Pilih].Operasi[SB.Position+2-1].Lokasi;
     TLokasi3.Text:=Kasus.Item[Pilih].Operasi[SB.Position+3-1].Lokasi;
     TLokasi4.Text:=Kasus.Item[Pilih].Operasi[SB.Position+4-1].Lokasi;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+1-1].Waktu:0:2,DumyString);
     TWaktu1.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+2-1].Waktu:0:2,DumyString);
     TWaktu2.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+3-1].Waktu:0:2,DumyString);
     TWaktu3.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+4-1].Waktu:0:2,DumyString);
     TWaktu4.Text:=DumyString;
     TMat1.Text:=Kasus.Item[Pilih].Operasi[SB.Position+1-1].Handling;
     TMat2.Text:=Kasus.Item[Pilih].Operasi[SB.Position+2-1].Handling;
     TMat3.Text:=Kasus.Item[Pilih].Operasi[SB.Position+3-1].Handling;
     TMat4.Text:=Kasus.Item[Pilih].Operasi[SB.Position+4-1].Handling;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+1-1].Volume:0:2,DumyString);
     TVolume1.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+2-1].Volume:0:2,DumyString);
     TVolume2.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+3-1].Volume:0:2,DumyString);
     TVolume3.Text:=DumyString;
```

```
     Str(Kasus.Item[Pilih].Operasi[SB.Position+4-1].Volume:0:2,DumyString);
     TVolume4.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+1-1].Weight:0:2,DumyString);
     TWeight1.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+2-1].Weight:0:2,DumyString);
     TWeight2.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+3-1].Weight:0:2,DumyString);
     TWeight3.Text:=DumyString;
     Str(Kasus.Item[Pilih].Operasi[SB.Position+4-1].Weight:0:2,DumyString);
     TWeight4.Text:=DumyString;
end;

procedure TFormInput.SBJarakChange(Sender: TObject);
begin
   if DumySB=1 then
   Begin
     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);
     System.Seek(FJarakDummy,SBJarak.Position+1-1-1);
     System.Read(FJarakDummy,JarakDummy);
     System.Close(FJarakDummy);
     From1.Text:=JarakDummy.Dari;
     To1.Text:=JarakDummy.Ke;
     Str(JarakDummy.Jarak:0:2,DumyString);
     Jarak1.Text:=DumyString;

     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);
     System.Seek(FJarakDummy,SBJarak.Position+2-1-1);
     System.Read(FJarakDummy,JarakDummy);
     System.Close(FJarakDummy);
     From2.Text:=JarakDummy.Dari;
     To2.Text:=JarakDummy.Ke;
     Str(JarakDummy.Jarak:0:2,DumyString);
     Jarak2.Text:=DumyString;

     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);
     System.Seek(FJarakDummy,SBJarak.Position+3-1-1);
     System.Read(FJarakDummy,JarakDummy);
     System.Close(FJarakDummy);
     From3.Text:=JarakDummy.Dari;
     To3.Text:=JarakDummy.Ke;
     Str(JarakDummy.Jarak:0:2,DumyString);
     Jarak3.Text:=DumyString;

     System.Assign(FJarakDummy,'Temp\JrkDummy.tmp');
     System.Reset(FJarakDummy);
     System.Seek(FJarakDummy,SBJarak.Position+4-1-1);
     System.Read(FJarakDummy,JarakDummy);
     System.Close(FJarakDummy);
     From4.Text:=JarakDummy.Dari;
     To4.Text:=JarakDummy.Ke;
     Str(JarakDummy.Jarak:0:2,DumyString);
     Jarak4.Text:=DumyString;
   End;
end;

procedure TFormInput.TCaseChange(Sender: TObject);
begin
     if TCase.Text<>'' then BCase.Enabled:=True Else BCase.Enabled:=False;
     if TCase.Text<>'' then BLoad.Enabled:=True Else BLoad.Enabled:=False;
end;

procedure TFormInput.TCaseKeyPress(Sender: TObject; var Key: Char);
begin
     if Key = #13 then BCase.Click;
end;

procedure TFormInput.TCostChange(Sender: TObject);
```

```
begin
     if (THandling.Text<>'') and (TCost.Text<>'') then BHandling.Enabled:=True
     Else BHandling.Enabled:=False;
end;

procedure TFormInput.TGenerasiChange(Sender: TObject);
begin
     Val(TGenerasi.Text,Parameter.Generasi,i);
end;

procedure TFormInput.THandlingChange(Sender: TObject);
begin
     if (THandling.Text<>'') and (TCost.Text<>'') then BHandling.Enabled:=True
     Else BHandling.Enabled:=False;
end;

procedure TFormInput.TItemChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TItem.Text<>'') and (TMaterial.Text<>'') and
(TLambang.Text<>'') and (TProduksi.Text<>'') and (TPindah.Text<>'') then
BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;

procedure TFormInput.TKapasitasChange(Sender: TObject);
begin
     if (TLokasi.Text<>'') and (TLLokasi.Text<>'') and (TKapasitas.Text<>'') then
BLokasi.Enabled:=True
     Else BLokasi.Enabled:=False;
end;

procedure TFormInput.TKebutuhanChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TKebutuhan.Text<>'') and (TItem.Text<>'') and
(TMaterial.Text<>'') and (TLambang.Text<>'') and (TProduksi.Text<>'') and
(TPindah.Text<>'') then BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;

procedure TFormInput.TLambangChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TItem.Text<>'') and (TMaterial.Text<>'') and
(TLambang.Text<>'') and (TProduksi.Text<>'') and (TPindah.Text<>'') then
BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;

procedure TFormInput.TLLokasiChange(Sender: TObject);
begin
     if (TLokasi.Text<>'') and (TLLokasi.Text<>'') and (TKapasitas.Text<>'') then
BLokasi.Enabled:=True
     Else BLokasi.Enabled:=False;
end;

procedure TFormInput.TLokasi1Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+1-1].Lokasi:=TLokasi1.Text;
end;

procedure TFormInput.TLokasi2Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+2-1].Lokasi:=TLokasi2.Text;
end;

procedure TFormInput.TLokasi3Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+3-1].Lokasi:=TLokasi3.Text;
end;

procedure TFormInput.TLokasi4Change(Sender: TObject);
```

```
begin
     Kasus.Item[Pilih].Operasi[SB.Position+4-1].Lokasi:=TLokasi4.Text;
end;

procedure TFormInput.TLokasiChange(Sender: TObject);
begin
     if (TLokasi.Text<>'') and (TLLokasi.Text<>'') and (TKapasitas.Text<>'') then
BLokasi.Enabled:=True
     Else BLokasi.Enabled:=False;

end;

procedure TFormInput.TMat1Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+1-1].Handling:=TMat1.Text;
end;

procedure TFormInput.TMat2Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+2-1].Handling:=TMat2.Text;
end;

procedure TFormInput.TMat3Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+3-1].Handling:=TMat3.Text;
end;

procedure TFormInput.TMat4Change(Sender: TObject);
begin
     Kasus.Item[Pilih].Operasi[SB.Position+4-1].Handling:=TMat4.Text;
end;

procedure TFormInput.TMaterialChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TItem.Text<>'') and (TMaterial.Text<>'') and
(TLambang.Text<>'') and (TProduksi.Text<>'') and (TPindah.Text<>'') then
BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;

procedure TFormInput.TPcChange(Sender: TObject);
begin
     Val(TPc.Text,Parameter.Pc,i);
end;

procedure TFormInput.TPindahChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TKebutuhan.Text<>'') and (TItem.Text<>'') and
(TMaterial.Text<>'') and (TLambang.Text<>'') and (TProduksi.Text<>'') and
(TPindah.Text<>'') then BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;

procedure TFormInput.TPmChange(Sender: TObject);
begin
     Val(TPm.Text,Parameter.Pm,i);
end;

procedure TFormInput.TPopulasiChange(Sender: TObject);
begin
     Val(TPopulasi.Text,Parameter.Populasi,i);
end;

procedure TFormInput.TProduksiChange(Sender: TObject);
begin
     if (TKebutuhan.Text<>'') and (TItem.Text<>'') and (TMaterial.Text<>'') and
(TLambang.Text<>'') and (TProduksi.Text<>'') and (TPindah.Text<>'') then
BItem.Enabled:=True
     Else BItem.Enabled:=False;
end;
```

```
procedure TFormInput.TPSaveChange(Sender: TObject);
begin
     if TPSave.Text<>'' then PSave.Enabled:=True Else PSave.Enabled:=False;
end;

procedure TFormInput.TPSaveKeyPress(Sender: TObject; var Key: Char);
begin
     if Key = #13 then PSave.Click;
end;

procedure TFormInput.TVolume1Change(Sender: TObject);
begin
     Val(TVolume1.Text,Kasus.Item[Pilih].Operasi[SB.Position+1-1].Volume,i);
end;

procedure TFormInput.TVolume2Change(Sender: TObject);
begin
     Val(TVolume2.Text,Kasus.Item[Pilih].Operasi[SB.Position+2-1].Volume,i);
end;

procedure TFormInput.TVolume3Change(Sender: TObject);
begin
     Val(TVolume3.Text,Kasus.Item[Pilih].Operasi[SB.Position+3-1].Volume,i);
end;

procedure TFormInput.TVolume4Change(Sender: TObject);
begin
     Val(TVolume4.Text,Kasus.Item[Pilih].Operasi[SB.Position+4-1].Volume,i);
end;

procedure TFormInput.TWaktu1Change(Sender: TObject);
begin
     Val(TWaktu1.Text,Kasus.Item[Pilih].Operasi[SB.Position+1-1].Waktu,i);
end;

procedure TFormInput.TWaktu2Change(Sender: TObject);
begin
     Val(TWaktu2.Text,Kasus.Item[Pilih].Operasi[SB.Position+2-1].Waktu,i);
end;

procedure TFormInput.TWaktu3Change(Sender: TObject);
begin
     Val(TWaktu3.Text,Kasus.Item[Pilih].Operasi[SB.Position+3-1].Waktu,i);
end;

procedure TFormInput.TWaktu4Change(Sender: TObject);
begin
     Val(TWaktu4.Text,Kasus.Item[Pilih].Operasi[SB.Position+4-1].Waktu,i);
end;

procedure TFormInput.TWeight1Change(Sender: TObject);
begin
     Val(TWeight1.Text,Kasus.Item[Pilih].Operasi[SB.Position+1-1].Weight,i);
end;

procedure TFormInput.TWeight2Change(Sender: TObject);
begin
     Val(TWeight2.Text,Kasus.Item[Pilih].Operasi[SB.Position+2-1].Weight,i);
end;

procedure TFormInput.TWeight3Change(Sender: TObject);
begin
     Val(TWeight3.Text,Kasus.Item[Pilih].Operasi[SB.Position+3-1].Weight,i);
end;

procedure TFormInput.TWeight4Change(Sender: TObject);
begin
     Val(TWeight4.Text,Kasus.Item[Pilih].Operasi[SB.Position+4-1].Weight,i);
end;
```

```
end.
```

```
unit Menu;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, Menus, jpeg, ExtCtrls, StdCtrls;

type
  TForm1 = class(TForm)
    MainMenu1: TMainMenu;
    Input1: TMenuItem;
    InputData: TMenuItem;
    ProsesData: TMenuItem;
    Exit1: TMenuItem;
    Exit2: TMenuItem;
    Image1: TImage;
    About1: TMenuItem;
    procedure Exit2Click(Sender: TObject);
    procedure InputDataClick(Sender: TObject);
    procedure ProsesDataClick(Sender: TObject);
    procedure About1Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  Form1: TForm1;

implementation
uses input,proses,about;
{$R *.dfm}

procedure TForm1.About1Click(Sender: TObject);
begin
     FormAbout.Show;
end;

procedure TForm1.Exit2Click(Sender: TObject);
begin
     Application.Terminate;
end;

procedure TForm1.ProsesDataClick(Sender: TObject);
begin
     FormProses.Show;
end;

procedure TForm1.InputDataClick(Sender: TObject);
begin
     FormInput.Show;
end;

end.
```

```
unit Proses;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
  Dialogs, StdCtrls, ExtCtrls, ComCtrls;

type
  TFormProses = class(TForm)
    Panel2: TPanel;
    Label1: TLabel;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    Label5: TLabel;
    TGenerasi: TEdit;
    TPopulasi: TEdit;
    TPc: TEdit;
    TPm: TEdit;
    TParameter: TEdit;
    PButton: TButton;
    Panel1: TPanel;
    Label6: TLabel;
    Label7: TLabel;
    Label10: TLabel;
    TItem: TEdit;
    TLokasi: TEdit;
    TCase: TEdit;
    CButton: TButton;
    Label8: TLabel;
    LCase: TLabel;
    BProses: TButton;
    BExit: TButton;
    Splitter1: TSplitter;
    Panel3: TPanel;
    Label9: TLabel;
    TCost: TEdit;
    Shape1: TShape;
    Label12: TLabel;
    Shape2: TShape;
    Shape3: TShape;
    Label13: TLabel;
    None: TLabel;
    Mesin1: TEdit;
    Mesin2: TEdit;
    Mesin3: TEdit;
    Mesin4: TEdit;
    Qty1: TEdit;
    Qty2: TEdit;
    Qty3: TEdit;
    Qty4: TEdit;
    No1: TEdit;
    No2: TEdit;
    No3: TEdit;
    No4: TEdit;
    SB: TScrollBar;
    Shape4: TShape;
    Label16: TLabel;
    Item1: TEdit;
    Item2: TEdit;
    Item3: TEdit;
    Item4: TEdit;
    Label11: TLabel;
    TReplikasi: TEdit;
    Label14: TLabel;
    Label20: TLabel;
    PBReplikasi: TProgressBar;
    PBGenerasi: TProgressBar;
    Label23: TLabel;
```

```
    TIterasi: TEdit;
    Label24: TLabel;
    THandling: TEdit;
    Label15: TLabel;
    Shape5: TShape;
    Cost4: TEdit;
    Cost3: TEdit;
    Cost2: TEdit;
    Cost1: TEdit;
    Label17: TLabel;
    Shape6: TShape;
    Handling1: TEdit;
    Handling2: TEdit;
    Handling3: TEdit;
    Handling4: TEdit;
    procedure TCaseChange(Sender: TObject);
    procedure TParameterChange(Sender: TObject);
    procedure CButtonClick(Sender: TObject);
    procedure FormCreate(Sender: TObject);
    procedure TGenerasiChange(Sender: TObject);
    procedure TPopulasiChange(Sender: TObject);
    procedure TPcChange(Sender: TObject);
    procedure TPmChange(Sender: TObject);
    procedure PButtonClick(Sender: TObject);
    procedure BExitClick(Sender: TObject);
    procedure BProsesClick(Sender: TObject);
    procedure SBChange(Sender: TObject);
    procedure TCaseKeyPress(Sender: TObject; var Key: Char);
    procedure TParameterKeyPress(Sender: TObject; var Key: Char);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

Type
    RParameter = Record
      Generasi : Integer;
      Populasi : Integer;
      Pc : Real;
      Pm : Real;
    End;

    ROperasi = Record
      Lokasi : String[30];
      LokasiKe : Integer;
      Waktu : Real;
      Handling : String[30];
      HandlingKe : Integer;
      Volume : Real;
      Weight : Real;
    End;
    RItem = Record
      Nama : String[30];
      Material : String[30];
      Lambang : String[30];
      Produksi : Real;
      Kebutuhan : Real;
      Pendahulu : String[30];
      PendahuluKe : Integer;
      Level : Integer;
      JumOperasi : Integer;
      Operasi : Array[1..100] of ROperasi;
    End;
    RCase = Record
      JumItem : Integer;
      Item : Array[1..50] of RItem;
    End;

    RHandling2 = Record
```

```
  Nama : String[30];
  Cost : Real;
End;
RHandling = Record
  JumHandling : Integer;
  Handling : Array[1..100] of RHandling2;
End;

RLokasi2 = Record
  Nama : String[30];
  Lambang : String[30];
  Kapasitas : Real;
  Fraktal : Array[1..6] of Integer;
End;
RLokasi = Record
  JumLokasi : Integer;
  Lokasi : Array[1..100] of RLokasi2;
End;

ROptions = Record
  FraktalMaks : Integer;
  JumlahMaks : Integer;
  SProduksi : String[30];
  SKapasitas : String[30];
End;

RJarak = Record
  Dari : String[30];
  Ke : String[30];
  Jarak : Real;
  DataKe : Integer;
End;

RJarak2 = Record
  DariMesinKe : Integer;
  DariFraktalKe : Integer;
  DariNoMesinKe : Integer;
  KeMesinKe : Integer;
  KeFraktalKe : Integer;
  KeNoMesinKe : Integer;
  Available : Integer;
  Jarak : Real;
End;

RMesin = Record
  Dari : Integer;
  Ke : Integer;
End;
RPredec = Record
  ItemKe : Integer;
  ItemKeSort : Integer;
End;
ROpTotal2 = Record
  Item : String[30];
  ItemKe : Integer;
  Level : Integer;
  Produk : String[30];
  ProdukKe : Integer;
  TotalCost : Real;
  JumPredec : Integer;
  Predec : Array[1..20] of RPredec;
  JumMesin : Integer;
  Mesin : Array[1..50] of RMesin;
End;
ROpTotal = Record
  Item : Array[1..101] of ROpTotal2;
  JumItem : Integer;
End;

RGen = Record
```

```
      Pm : Real;
      ItemKe : Integer;
      Produk : String[30];
      ProdukKe : Integer;
      OperasiKe : Integer;
      MesinKe : Integer;
      FraktalKe : Integer;
      NoMesinKe : Integer;
      Produksi : Real;
      Keluar : Real;
      Cost : Real;
    End;
    RKromosom = Record
      JumGen : Integer;
      Pc : Real;
      TotalCost : Real;
      Gen : Array[1..3501] of RGen;
    End;

    RGen2 = Record
      Item : String[30];
      Mesin : String[60];
      Handling : String[30];
      Produksi : String[30];
      Cost : String[30];
    End;
    RTampilan = Record
      JumGen : Integer;
      Gen : Array[1..3501] of RGen2;
    End;

    RSeleksi = Record
      Urutan : Integer;
      TotalCost : Real;
    End;

    RLocator4 = Record
      Kapasitas : Real;
      Sisa : Real;
    End;
    RLocator3 = Record
      JumMesin : Integer;
      MesinKe : Array[1..50] of RLocator4;
    End;
    RLocator2 = Record
      Nama : String[30];
      Lambang : String[30];
      Fraktal : Array[1..6] of RLocator3;
    End;
    RLocator = Record
      JumLokasi :Integer;
      Lokasi : Array[1..100] of RLocator2;
    End;

var
  FormProses: TFormProses;
  Parameter : RParameter;
  FParameter : File Of RParameter;
  Handling : RHandling;
  FHandling : File of RHandling;
  Lokasi : RLokasi;
  FLokasi : File of RLokasi;
  Kasus : RCase;
  FKasus : FIle of RCase;
  Options : ROptions;
  FOptions : File of ROptions;
  Jarak : RJarak2;
  FJarak, FJarak2 : File of RJarak2;
  JarakDummy : RJarak;
  FJarakDummy,FJarakDummy2 : File of RJarak;
```

```
  OpTotal : ROpTotal;
  FOpTotal : File of ROpTotal;
  Kromosom : RKromosom;
  FKromosom : File of RKromosom;

  Genetic,Genetic2,GeneticBest,GeneticKsg : RKromosom;
  FGenetic : File of RKromosom;

  Locator, LocatorTemp : RLocator;

  Parent1,Parent2, Anak1, Anak2 : RKromosom;

  GenSeleksi : Array[1..5001] of RSeleksi;

  Tampilan : RTampilan;

  i,j,k,l,m : integer;
  IterasiJalan,PopulasiJalan : integer;
  Replikasi,ReplikasiJalan : Integer;

  CostRata2,CostGood : Real;

  CBPilih : Integer;

  Click1,Click2 : Integer;
  DumyString : String;
  Test : Text;
  WaktuMulai, WaktuSelesai : TDateTime;
  WaktuMulai1, WaktuSelesai1 : String;

implementation

{$R *.dfm}

procedure TFormProses.BExitClick(Sender: TObject);
begin
     Close;
end;

procedure TFormProses.BProsesClick(Sender: TObject);
procedure Cleansing_Layar;
Begin
     SB.Position:=1;
     SB.Enabled:=False;
     No1.Text:='';
     No2.Text:='';
     No3.Text:='';
     No4.Text:='';
     Item1.Text:='';
     Item2.Text:='';
     Item3.Text:='';
     Item4.Text:='';
     Mesin1.Text:='';
     Mesin2.Text:='';
     Mesin3.Text:='';
     Mesin4.Text:='';
     Qty1.Text:='';
     Qty2.Text:='';
     Qty3.Text:='';
     Qty4.Text:='';
     Cost1.Text:='';
     Cost2.Text:='';
     Cost3.Text:='';
     Cost4.Text:='';
     {Handling1.Text:='';
     Handling2.Text:='';
     Handling3.Text:='';
     Handling4.Text:='';  }
     TIterasi.Text:='';
     TCost.Text:='';
```

```
End;
procedure Create_File;
Begin
     WaktuMulai:=GetTime;
     WaktuMulai1:=DateTimetoStr(now);
     str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
     System.Rewrite(Test);
     System.Reset(Test);
     System.Append(Test);
     System.Writeln(Test,'Generasi;Populasi;Total OMH;Detail');
     System.Close(Test);

     System.Assign(FGenetic,'Temp\Genetic.gen');
     System.Rewrite(FGenetic);
     System.Close(FGenetic);

     System.Assign(Test,'Solusi\Best'+DumyString+'.txt');
     System.Rewrite(Test);
     System.Append(Test);
     System.Writeln(Test,'Hasil Akhir untuk Kasus : ',LCase.Caption);
     System.Writeln(Test,'Jumlah Item             : ',Kasus.JumItem);
     System.Writeln(Test,'Jumlah Handling         : ',Handling.JumHandling);
     System.Writeln(Test,'Jumlah Lokasi           : ',Lokasi.JumLokasi);
     System.Writeln(Test,'Parameter Generasi      : ',Parameter.Generasi);
     System.Writeln(Test,'Parameter Populasi      : ',Parameter.Populasi);
     System.Writeln(Test,'Parameter Pc            : ',Parameter.Pc:0:4);
     System.Writeln(Test,'Parameter Pm            : ',Parameter.Pm:0:4);
     System.Writeln(Test);
     System.Close(Test);

     System.Assign(Test,'Solusi\MeanEfi'+DumyString+'.txt');
     System.Rewrite(Test);
     System.Append(Test);
     System.Writeln(Test,'Generasi;OMH Terbaik;Rata-Rata OMH');
     System.Close(Test);
End;
procedure Total_Cost;
Var JumProd,JumKeb : Real;
    JumProd2,SisaProd2,Approved2 : Real;
    SisaProd,SisaKeb : Real;
    SisaKap, Approved : Real;
    Smaller : Real;
    Frek : Integer;
    Distance : Integer;
Begin
     Locator:=LocatorTemp;
     for i := 1 to Genetic.JumGen do
     Begin
       Genetic.Gen[i].Produksi:=0;
       Genetic.Gen[i].Keluar:=0;
       Genetic.Gen[i].Cost:=0;
     End;
     Genetic.TotalCost:=0;

     for i := 1 to OpTotal.JumItem do
       for j := 1 to OpTotal.Item[i].JumMesin do
         if (j=1) and (OpTotal.Item[i].JumPredec=0) then
         Begin
           JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
           JumKeb:=Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan; SisaKeb:=JumKeb;
           for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
           Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
```

```
            if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
            Else
            Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
              if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                 Approved:=Approved-1;
            End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
            SisaProd:=SisaProd-Approved;
            Genetic.Gen[k].Produksi:=Approved;
            Genetic.Gen[k].Keluar:=0;
            {Hitung Total Cost Jarak}
            if
Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume<Kasus.Item[OpTotal.Item[i].It
emKe].Operasi[j].Weight then
               Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume
            else Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight;
            Frek:=Round(((Approved/JumProd)*JumKeb)/Smaller);
            if Frek<(((Approved/JumProd)*JumKeb)/Smaller) then Frek:=Frek+1;
            Distance:=(Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks;
            Distance:=Distance+((Genetic.Gen[k].FraktalKe-1)*OpTions.JumlahMaks);
            Distance:=Distance+Genetic.Gen[k].NoMesinKe;
            System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
            System.Reset(FJarak);
            System.Seek(FJarak,Distance-1);
            System.Read(FJarak,Jarak);
            System.Close(FJarak);

Genetic.Gen[k].Cost:=Jarak.Jarak*Frek*Handling.Handling[Kasus.Item[OpTotal.Item[i]
.ItemKe].Operasi[j].HandlingKe].Cost;
            Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;
            if SisaProd<=0 then Break;
          End;
        End
        Else if (j=1) and (OpTotal.Item[i].JumPredec>0) then
        Begin
          JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
          JumKeb:=Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan; SisaKeb:=JumKeb;
          for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
          Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
            if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
            Else
            Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
              if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                 Approved:=Approved-1;
            End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
```

```
              SisaProd:=SisaProd-Approved;
              Genetic.Gen[k].Produksi:=Approved;
              Genetic.Gen[k].Keluar:=0;
              {Hitung Total Cost Jarak}
              for l := 1 to OpTotal.Item[i].JumPredec do
              Begin
                JumProd2:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Produksi;
                SisaProd2:=Approved/JumProd*JumProd2;
                if OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].JumMesin<=0
then
                Begin
                  JumProd2:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Kebutuhan;
                  SisaProd2:=Approved/JumProd*JumProd2;
                  Approved2:=SisaProd2;
                  if
Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Volume<Kasus.Item[OpTotal.
Item[i].Predec[l].ItemKe].Operasi[1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Volume
                  else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Weight;
                  Frek:=Round(Approved2/Smaller);
                  if Frek<(Approved2/Smaller) then Frek:=Frek+1;
                  Distance:=(Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks;
                  Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
                  Distance:=Distance+Genetic.Gen[k].NoMesinKe;
                  System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
                  System.Reset(FJarak);
                  System.Seek(FJarak,Distance-1);
                  System.Read(FJarak,Jarak);
                  System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[{Kasu
s.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].Operasi[1].HandlingKe].Cost);
                End
                Else for m :=
OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].Mesin[OpTotal.Item[OpTotal.Item
[i].Predec[l].ItemKeSort].JumMesin].Dari to
OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].Mesin[OpTotal.Item[OpTotal.Item
[i].Predec[l].ItemKeSort].JumMesin].Ke do
                if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>0 then
                Begin
                  if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>=SisaProd2
then
                     Approved2:=SisaProd2
                  else Approved2:=Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar;
                  Genetic.Gen[m].Keluar:=Genetic.Gen[m].Keluar+Approved2;
                  SisaProd2:=SisaProd2-Approved2;

                  if
Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].JumOperasi+1].Volume<Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].
Operasi[Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[l].ItemKe].JumOperasi+1].Volume
                  else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[l].ItemKe].JumOperasi+1].Weight;
                  Frek:=Round(Approved2/Smaller);
                  if Frek<(Approved2/Smaller) then Frek:=Frek+1;

Distance:=Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks;
                  Distance:=Distance+((Genetic.Gen[m].MesinKe-
1)*Options.FraktalMaks*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Opt
ions.JumlahMaks);
```

```
                Distance:=Distance+((Genetic.Gen[m].FraktalKe-
1)*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[m].NoMesinKe-
1)*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
                Distance:=Distance+Genetic.Gen[k].NoMesinKe;
                System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
                System.Reset(FJarak);
                System.Seek(FJarak,Distance-1);
                System.Read(FJarak,Jarak);
                System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[{Kasu
s.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1]
.HandlingKe].Cost);
                if SisaProd2<=0 then Break;
              End;
            End;
            Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;
            if SisaProd<=0 then Break;
          End;
        End
        Else if (j>1) then
        Begin
          JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
          for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
          Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
            if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
            Else
            Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
              if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                Approved:=Approved-1;
            End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
            SisaProd:=SisaProd-Approved;
            Genetic.Gen[k].Produksi:=Approved;
            Genetic.Gen[k].Keluar:=0;
            {Hitung Total Cost Jarak}
            SisaProd2:=Approved;
            for m := OpTotal.Item[i].Mesin[j-1].Dari to OpTotal.Item[i].Mesin[j-
1].Ke do
            if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>0 then
            Begin
              if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>=SisaProd2 then
                 Approved2:=SisaProd2
              else Approved2:=Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar;
              Genetic.Gen[m].Keluar:=Genetic.Gen[m].Keluar+Approved2;
              SisaProd2:=SisaProd2-Approved2;

              if
Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume<Kasus.Item[OpTotal.Item[i].It
emKe].Operasi[j].Weight then
```

```
                    Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume
               else Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight;
               Frek:=Round(Approved2/Smaller);
               if Frek<(Approved2/Smaller) then Frek:=Frek+1;
               Distance:=Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks;
               Distance:=Distance+((Genetic.Gen[m].MesinKe-
1)*Options.FraktalMaks*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Opt
ions.JumlahMaks);
               Distance:=Distance+((Genetic.Gen[m].FraktalKe-
1)*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
               Distance:=Distance+((Genetic.Gen[m].NoMesinKe-
1)*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
               Distance:=Distance+((Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks);
               Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
               Distance:=Distance+Genetic.Gen[k].NoMesinKe;
               System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
               System.Reset(FJarak);
               System.Seek(FJarak,Distance-1);
               System.Read(FJarak,Jarak);
               System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[Kasus
.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe].Cost);
               if SisaProd2<=0 then Break;
             End;
             Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;
             if SisaProd<=0 then Break;
           End;
         End;
End;
procedure Total_Cost_Tampil;
Var JumProd,JumKeb : Real;
    JumProd2,SisaProd2,Approved2 : Real;
    SisaProd,SisaKeb : Real;
    SisaKap, Approved : Real;
    Smaller : Real;
    Frek : Integer;
    Distance : Integer;
Begin
     Locator:=LocatorTemp;
     for i := 1 to Genetic.JumGen do
     Begin
       Genetic.Gen[i].Produksi:=0;
       Genetic.Gen[i].Keluar:=0;
       Genetic.Gen[i].Cost:=0;
     End;
     Genetic.TotalCost:=0;

     for i := 1 to OpTotal.JumItem do
       for j := 1 to OpTotal.Item[i].JumMesin do
         if (j=1) and (OpTotal.Item[i].JumPredec=0) then
         Begin
           JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
           JumKeb:=Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan; SisaKeb:=JumKeb;
           for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
           Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
             if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
             Else
             Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
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```
              if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                  Approved:=Approved-1;
             End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
             SisaProd:=SisaProd-Approved;
             Genetic.Gen[k].Produksi:=Approved;
             Genetic.Gen[k].Keluar:=0;
             {Hitung Total Cost Jarak}
             if
Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume<Kasus.Item[OpTotal.Item[i].It
emKe].Operasi[j].Weight then
                Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume
             else Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight;
             Frek:=Round(((Approved/JumProd)*JumKeb)/Smaller);
             if Frek<(((Approved/JumProd)*JumKeb)/Smaller) then Frek:=Frek+1;
             Distance:=(Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks;
             Distance:=Distance+((Genetic.Gen[k].FraktalKe-1)*OpTions.JumlahMaks);
             Distance:=Distance+Genetic.Gen[k].NoMesinKe;
             System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
             System.Reset(FJarak);
             System.Seek(FJarak,Distance-1);
             System.Read(FJarak,Jarak);
             System.Close(FJarak);

Genetic.Gen[k].Cost:=Jarak.Jarak*Frek*Handling.Handling[Kasus.Item[OpTotal.Item[i]
.ItemKe].Operasi[j].HandlingKe].Cost;
             Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;

             Str(ReplikasiJalan,DumyString);
             System.Assign(Test,'Solusi\DetailBest'+DumyString+'.txt');
             System.Reset(Test);
             System.Append(Test);
             System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Nama,';');
             System.Write(Test,'Bahan Baku;');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Produksi:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight:0:2,';');
             System.Write(Test,'0-0-0;');
             System.Write(Test,Genetic.Gen[k].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[k].MesinKe].Nama,'-',Genetic.Gen[k].NoMesinKe,';');
             System.Write(Test,SisaKap:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu:0:2,';');
             System.Write(Test,Approved:0:2,';');
             System.Write(Test,Approved:0:2,';');
             System.Write(Test,Frek,';');
             System.Write(Test,Jarak.Jarak:0:2,';');

System.Write(Test,Handling.Handling[Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].
HandlingKe].Nama,';');

System.Write(Test,Handling.Handling[Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].
HandlingKe].Cost:0:2,';');
             System.Writeln(Test,Genetic.Gen[k].Cost:0:2);
             System.Close(Test);
             if SisaProd<=0 then Break;
           End;
         End
         Else if (j=1) and (OpTotal.Item[i].JumPredec>0) then
```

```
         Begin
           JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
           JumKeb:=Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan; SisaKeb:=JumKeb;
           for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
           Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
             if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
             Else
             Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
               if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                  Approved:=Approved-1;
             End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
             SisaProd:=SisaProd-Approved;
             Genetic.Gen[k].Produksi:=Approved;
             Genetic.Gen[k].Keluar:=0;
             {Hitung Total Cost Jarak}
             for l := 1 to OpTotal.Item[i].JumPredec do
             Begin
               JumProd2:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Produksi;
               SisaProd2:=Approved/JumProd*JumProd2;
               if OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].JumMesin<=0
then
               Begin
                 JumProd2:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Kebutuhan;
                 SisaProd2:=Approved/JumProd*JumProd2;
                 Approved2:=SisaProd2;
                 if
Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Volume<Kasus.Item[OpTotal.
Item[i].Predec[l].ItemKe].Operasi[1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Volume
                 else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Weight;
                 Frek:=Round(Approved2/Smaller);
                 if Frek<(Approved2/Smaller) then Frek:=Frek+1;
                 Distance:=(Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks;
                 Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
                 Distance:=Distance+Genetic.Gen[k].NoMesinKe;
                 System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
                 System.Reset(FJarak);
                 System.Seek(FJarak,Distance-1);
                 System.Read(FJarak,Jarak);
                 System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[{Kasu
s.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].Operasi[1].HandlingKe].Cost);

                 Str(ReplikasiJalan,DumyString);
                 System.Assign(Test,'Solusi\DetailBest'+DumyString+'.txt');
                 System.Reset(Test);
                 System.Append(Test);
                 System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Nama,';');
```

```
System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Nama,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Produksi:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Volume:0
:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].Weight:0
:2,';');
                System.Write(Test,'0-0-0;');
                System.Write(Test,Genetic.Gen[k].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[k].MesinKe].Nama,'-',Genetic.Gen[k].NoMesinKe,';');
                System.Write(Test,SisaKap:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu:0:2,';');
                System.Write(Test,Approved:0:2,';');
                System.Write(Test,Approved2:0:2,';');
                System.Write(Test,Frek,';');
                System.Write(Test,Jarak.Jarak:0:2,';');

System.Write(Test,Handling.Handling[{Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j]
.HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].HandlingKe].Na
ma,';');

System.Write(Test,Handling.Handling[{Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j]
.HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[1].HandlingKe].Co
st:0:2,';');

System.Writeln(Test,(Jarak.Jarak*Frek*Handling.Handling[{Kasus.Item[OpTotal.Item[i
].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Opera
si[1].HandlingKe].Cost):0:2);
                System.Close(Test);
              End
              Else for m :=
OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].Mesin[OpTotal.Item[OpTotal.Item
[i].Predec[l].ItemKeSort].JumMesin].Dari to
OpTotal.Item[OpTotal.Item[i].Predec[l].ItemKeSort].Mesin[OpTotal.Item[OpTotal.Item
[i].Predec[l].ItemKeSort].JumMesin].Ke do
              if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>0 then
              Begin
                if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>=SisaProd2
then
                   Approved2:=SisaProd2
                else Approved2:=Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar;
                Genetic.Gen[m].Keluar:=Genetic.Gen[m].Keluar+Approved2;
                SisaProd2:=SisaProd2-Approved2;

                if
Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].JumOperasi+1].Volume<Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].
Operasi[Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1].Weight then

Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[l].ItemKe].JumOperasi+1].Volume
                else
Smaller:=Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTotal.I
tem[i].Predec[l].ItemKe].JumOperasi+1].Weight;
                Frek:=Round(Approved2/Smaller);
                if Frek<(Approved2/Smaller) then Frek:=Frek+1;

Distance:=Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks;
                Distance:=Distance+((Genetic.Gen[m].MesinKe-
1)*Options.FraktalMaks*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Opt
ions.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[m].FraktalKe-
1)*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
```

```
                Distance:=Distance+((Genetic.Gen[m].NoMesinKe-
1)*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks);
                Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
                Distance:=Distance+Genetic.Gen[k].NoMesinKe;
                System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
                System.Reset(FJarak);
                System.Seek(FJarak,Distance-1);
                System.Read(FJarak,Jarak);
                System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[{Kasu
s.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Pr
edec[l].ItemKe].Operasi[Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1]
.HandlingKe].Cost);

                Str(ReplikasiJalan,DumyString);
                System.Assign(Test,'Solusi\DetailBest'+DumyString+'.txt');
                System.Reset(Test);
                System.Append(Test);
                System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Nama,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Nama,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Produksi:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[
OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1].Volume:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[
OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1].Weight:0:2,';');
                System.Write(Test,Genetic.Gen[m].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[m].MesinKe].Nama,'-',Genetic.Gen[m].NoMesinKe,';');
                System.Write(Test,Genetic.Gen[k].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[k].MesinKe].Nama,'-',Genetic.Gen[k].NoMesinKe,';');
                System.Write(Test,SisaKap:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu:0:2,';');
                System.Write(Test,Approved:0:2,';');
                System.Write(Test,Approved2:0:2,';');
                System.Write(Test,Frek,';');
                System.Write(Test,Jarak.Jarak:0:2,';');

System.Write(Test,Handling.Handling[{Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j]
.HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTota
l.Item[i].Predec[l].ItemKe].JumOperasi+1].HandlingKe].Nama,';');

System.Write(Test,Handling.Handling[{Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j]
.HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Operasi[Kasus.Item[OpTota
l.Item[i].Predec[l].ItemKe].JumOperasi+1].HandlingKe].Cost:0:2,';');

System.Writeln(Test,(Jarak.Jarak*Frek*Handling.Handling[{Kasus.Item[OpTotal.Item[i
].ItemKe].Operasi[j].HandlingKe}Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].Opera
si[Kasus.Item[OpTotal.Item[i].Predec[l].ItemKe].JumOperasi+1].HandlingKe].Cost):0:
2);
                System.Close(Test);
                if SisaProd2<=0 then Break;
              End;
            End;
            Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;
            if SisaProd<=0 then Break;
          End;
        End
        Else if (j>1) then
        Begin
```

```
          JumProd:=Kasus.Item[OpTotal.Item[i].ItemKe].Produksi;
SisaProd:=JumProd;
          for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
          Begin

SisaKap:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].
MesinKe[Genetic.Gen[k].NoMesinKe].Sisa;
            if
SisaKap>(SisaProd*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu) then
Approved:=SisaProd
            Else
            Begin

Approved:=Round(SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu);
              if
Approved>SisaKap/Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu then
                 Approved:=Approved-1;
            End;

Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Genetic.Gen[k].FraktalKe].MesinKe[G
enetic.Gen[k].NoMesinKe].Sisa:=Locator.Lokasi[Genetic.Gen[k].MesinKe].Fraktal[Gene
tic.Gen[k].FraktalKe].MesinKe[Genetic.Gen[k].NoMesinKe].Sisa-
Approved*Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu;
            SisaProd:=SisaProd-Approved;
            Genetic.Gen[k].Produksi:=Approved;
            Genetic.Gen[k].Keluar:=0;
            {Hitung Total Cost Jarak}
            SisaProd2:=Approved;
            for m := OpTotal.Item[i].Mesin[j-1].Dari to OpTotal.Item[i].Mesin[j-
1].Ke do
            if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>0 then
            Begin
              if (Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar)>=SisaProd2 then
                 Approved2:=SisaProd2
              else Approved2:=Genetic.Gen[m].Produksi-Genetic.Gen[m].Keluar;
              Genetic.Gen[m].Keluar:=Genetic.Gen[m].Keluar+Approved2;
              SisaProd2:=SisaProd2-Approved2;

              if
Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume<Kasus.Item[OpTotal.Item[i].It
emKe].Operasi[j].Weight then
                   Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume
              else Smaller:=Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight;
              Frek:=Round(Approved2/Smaller);
              if Frek<(Approved2/Smaller) then Frek:=Frek+1;
              Distance:=Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks;
              Distance:=Distance+((Genetic.Gen[m].MesinKe-
1)*Options.FraktalMaks*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Opt
ions.JumlahMaks);
              Distance:=Distance+((Genetic.Gen[m].FraktalKe-
1)*Options.JumlahMaks*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
              Distance:=Distance+((Genetic.Gen[m].NoMesinKe-
1)*Lokasi.JumLokasi*OpTions.FraktalMaks*Options.JumlahMaks);
              Distance:=Distance+((Genetic.Gen[k].MesinKe-
1)*OpTions.FraktalMaks*OpTions.JumlahMaks);
              Distance:=Distance+((Genetic.Gen[k].FraktalKe-
1)*OpTions.JumlahMaks);
              Distance:=Distance+Genetic.Gen[k].NoMesinKe;
              System.Assign(FJarak,'Case\'+LCase.Caption+'.jrk');
              System.Reset(FJarak);
              System.Seek(FJarak,Distance-1);
              System.Read(FJarak,Jarak);
              System.Close(FJarak);

Genetic.Gen[k].Cost:=Genetic.Gen[k].Cost+(Jarak.Jarak*Frek*Handling.Handling[Kasus
.Item[OpTotal.Item[i].ItemKe].Operasi[j].HandlingKe].Cost);

              Str(ReplikasiJalan,DumyString);
              System.Assign(Test,'Solusi\DetailBest'+DumyString+'.txt');
```

```
              System.Reset(Test);
              System.Append(Test);
              System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Nama,';');
              System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Nama,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Produksi:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Kebutuhan:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Volume:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Weight:0:2,';');
              System.Write(Test,Genetic.Gen[m].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[m].MesinKe].Nama,'-',Genetic.Gen[m].NoMesinKe,';');
              System.Write(Test,Genetic.Gen[k].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[k].MesinKe].Nama,'-',Genetic.Gen[k].NoMesinKe,';');
              System.Write(Test,SisaKap:0:2,';');

System.Write(Test,Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].Waktu:0:2,';');
              System.Write(Test,Approved:0:2,';');
              System.Write(Test,Approved2:0:2,';');
              System.Write(Test,Frek,';');
              System.Write(Test,Jarak.Jarak:0:2,';');

System.Write(Test,Handling.Handling[Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].
HandlingKe].Nama,';');

System.Write(Test,Handling.Handling[Kasus.Item[OpTotal.Item[i].ItemKe].Operasi[j].
HandlingKe].Cost:0:2,';');

System.Writeln(Test,(Jarak.Jarak*Frek*Handling.Handling[Kasus.Item[OpTotal.Item[i]
.ItemKe].Operasi[j].HandlingKe].Cost):0:2);
              System.Close(Test);
              if SisaProd2<=0 then Break;
            End;
            Genetic.TotalCost:=Genetic.TotalCost+Genetic.Gen[k].Cost;
            if SisaProd<=0 then Break;
          End;
        End;
End;
procedure Solusi_Awal;
Var Acak : Array[1..201] of Integer;
    JumAcak,JumAcakDummy : Integer;
    BilAcak : Integer;
Begin
     Genetic:=GeneticKsg;
     Genetic.JumGen:=Kromosom.JumGen;

     for i := 1 to OpTotal.JumItem do
     Begin
       if OpTotal.Item[i].JumMesin=0 then
       Begin
         for j := 1 to 1 do

Genetic.Gen[OpTotal.Item[i].Mesin[j].Dari]:=Kromosom.Gen[OpTotal.Item[i].Mesin[j].
Dari];
       End
       Else if (OpTotal.Item[i].Item[1]='*') then
       Begin
         for j := 1 to OpTotal.Item[i].JumMesin do
           for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
           Begin
             Genetic.Gen[k]:=Kromosom.Gen[k];
           End;
       End
       Else for j := 1 to OpTotal.Item[i].JumMesin do
       Begin
         JumAcak:=0;
         for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke do
```

```
         Begin
            JumAcak:=JumAcak+1;
            Acak[JumAcak]:=k;
         End;
         JumAcakDummy:=JumAcak;
         Repeat
           BilAcak:=Random(JumAcakDummy)+1;
           Acak[201]:=Acak[BilAcak];
           Acak[BilAcak]:=Acak[JumAcakDummy];
           Acak[JumAcakDummy]:=Acak[201];
           JumAcakDummy:=JumAcakDummy-1;
         Until JumAcakDummy<=0;;
         JumAcakDummy:=0;
         for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke do
         Begin
            JumAcakDummy:=JumAcakDummy+1;
            Genetic.Gen[k]:=Kromosom.Gen[Acak[JumAcakDummy]];
         End;
       End;
     End;

     Total_Cost;

     str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
     System.Reset(Test);
     System.Append(Test);

System.Write(Test,IterasiJalan,';',PopulasiJalan,';',Genetic.TotalCost:0:2,';');
     for i := 1 to Genetic.JumGen do
     Begin
       if (Genetic.Gen[i].MesinKe<>0) and
(Kasus.Item[Genetic.Gen[i].ItemKe].Nama[1]<>'*') then
         if i<Genetic.JumGen then
System.Write(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Operasi
Ke,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe,';')
         Else
System.Writeln(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Opera
siKe,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe);
     End;
     System.Close(Test);
End;
procedure Crossover;
Var CrossOver : Array[1..5001] of Integer;
    JumlahParent,JumlahParentDumy,Terpilih : Integer;
    x,Titik1,Titik2,Dumy : Integer;
Begin
     System.Assign(FGenetic,'Temp\Genetic.gen');
     System.Reset(FGenetic);
     Str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
     System.Reset(Test);
     System.Append(Test);
     System.Writeln(Test);
     System.Close(Test);

     JumlahParent:=0;
     for i := 1 to System.FileSize(FGenetic) do
       if (Random(10001)/10000)<=Parameter.Pc then
       Begin
         JumlahParent:=JumlahParent+1;
         CrossOver[JumlahParent]:=i;
       End;

     JumlahParentDumy:=JumlahParent;
     while JumlahParentDumy>0 do
     Begin
       Terpilih:=Random(JumlahParentDumy)+1;
```

```
        CrossOver[5001]:=CrossOver[JumlahParentDumy];
        CrossOver[JumlahParentDumy]:=CrossOver[Terpilih];
        CrossOver[Terpilih]:=CrossOver[5001];
        JumlahParentDumy:=JumlahParentDumy-1;
      End;

      for x := 1 to (JumlahParent Div 2) do
      Begin
        System.Seek(FGenetic,CrossOver[(2*x)-1]-1);
        System.Read(FGenetic,Parent1);
        System.Seek(FGenetic,CrossOver[(2*x)]-1);
        System.Read(FGenetic,Parent2);

        Dumy:=0;
        Repeat
          Titik1:=Random(OpTotal.JumItem-2)+2;
          if (OpTotal.Item[Titik1].JumMesin>0) and
(OpTotal.Item[Titik1].Item[1]<>'*') then
            Dumy:=1;
        Until Dumy=1;

        Dumy:=0;
        Repeat
          Titik2:=Random(OpTotal.JumItem-2)+2;
          if (OpTotal.Item[Titik2].JumMesin>0) and
(OpTotal.Item[Titik2].Item[1]<>'*') then
            Dumy:=1;
        Until Dumy=1;

        if Titik1>Titik2 then
        Begin
          Dumy:=Titik1; Titik1:=Titik2; Titik2:=Dumy;
        End;

        Anak1.JumGen:=Parent1.JumGen;
        Anak2.JumGen:=Parent2.JumGen;
        for i := 1 to OpTotal.Item[Titik1].Mesin[1].Dari-1 do
        Begin
          Anak1.Gen[i]:=Parent1.Gen[i];
          Anak2.Gen[i]:=Parent2.Gen[i];
        End;
        for i := OpTotal.Item[Titik2].Mesin[OpTotal.Item[Titik2].JumMesin].Ke+1 to
Kromosom.JumGen do
        Begin
          Anak1.Gen[i]:=Parent1.Gen[i];
          Anak2.Gen[i]:=Parent2.Gen[i];
        End;
        for i := OpTotal.Item[Titik1].Mesin[1].Dari to
OpTotal.Item[Titik2].Mesin[OpTotal.Item[Titik2].JumMesin].Ke do
        Begin
          Anak1.Gen[i]:=Parent2.Gen[i];
          Anak2.Gen[i]:=Parent1.Gen[i];
        End;

        Genetic:=Anak1;
        Total_Cost;
        System.Seek(FGenetic,System.FileSize(FGenetic));
        System.Write(FGenetic,Genetic);
        str(ReplikasiJalan,DumyString);
        System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
        System.Reset(Test);
        System.Append(Test);
        System.Write(Test,IterasiJalan,';C',Crossover[(2*x)-
1],'&',Crossover[2*x],';',Genetic.TotalCost:0:2,';');
        for i := 1 to Genetic.JumGen do
        Begin
          if (Genetic.Gen[i].MesinKe<>0) and
(Kasus.Item[Genetic.Gen[i].ItemKe].Nama[1]<>'*') then
            if i<Genetic.JumGen then
System.Write(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Operasi
```

```
Ke,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe,';')
           Else
System.Writeln(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Opera
siKe,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe);
       End;
       System.Close(Test);

       Genetic:=Anak2;
       Total_Cost;
       System.Seek(FGenetic,System.FileSize(FGenetic));
       System.Write(FGenetic,Genetic);
       str(ReplikasiJalan,DumyString);
       System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
       System.Reset(Test);
       System.Append(Test);
       System.Write(Test,IterasiJalan,';C',Crossover[(2*x)-
1],'&',Crossover[2*x],';',Genetic.TotalCost:0:2,';');
       for i := 1 to Genetic.JumGen do
       Begin
         if (Genetic.Gen[i].MesinKe<>0) and
(Kasus.Item[Genetic.Gen[i].ItemKe].Nama[1]<>'*') then
           if i<Genetic.JumGen then
System.Write(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Operasi
Ke,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe,';')
           Else
System.Writeln(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Opera
siKe,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe);
       End;
       System.Close(Test);
     End;

     System.Close(FGenetic);
End;
procedure Mutasi;
Var x,dumy : Integer;
    GenDumy : Rgen;
Begin
     System.Assign(FGenetic,'Temp\Genetic.gen');
     System.Reset(FGenetic);
     m:=System.FileSize(FGenetic);
     for x := 1 to m do
     Begin
       System.Seek(FGenetic,x-1);
       System.Read(FGenetic,Genetic);
       for i := 1 to Genetic.JumGen do Genetic.Gen[i].Pm:=Random(10001)/10000;

       Dumy:=0;
       for i := 1 to Optotal.JumItem do
       if (OpTotal.Item[i].JumMesin>0) and (OpTotal.Item[i].Item[1]<>'*') then
         for j := 1 to OpTotal.Item[i].JumMesin do
           for k := OpTotal.Item[i].Mesin[j].Dari to OpTotal.Item[i].Mesin[j].Ke
do
           if Genetic.Gen[k].Pm<=Parameter.Pm then
           Begin
             Dumy:=1;
             if k<>OpTotal.Item[i].Mesin[j].Ke then
             Begin
               GenDumy:=Genetic.Gen[k];
               Genetic.Gen[k]:=Genetic.Gen[k+1];
               Genetic.Gen[k+1]:=GenDumy;
               Genetic.Gen[k+1].Pm:=Genetic.Gen[k].Pm;
               Genetic.Gen[k].Pm:=GenDumy.Pm;
             End
             Else
             Begin
               GenDumy:=Genetic.Gen[k];
```

```
              Genetic.Gen[k]:=Genetic.Gen[OpTotal.Item[i].Mesin[j].Dari];
              Genetic.Gen[OpTotal.Item[i].Mesin[j].Dari]:=GenDumy;
              Genetic.Gen[OpTotal.Item[i].Mesin[j].Dari].Pm:=Genetic.Gen[k].Pm;
              Genetic.Gen[k].Pm:=GenDumy.Pm;
            End;
          End;
       if Dumy=1 then
       Begin
         Total_Cost;
         System.Seek(FGenetic,System.FileSize(FGenetic));
         System.Write(FGenetic,Genetic);
         str(ReplikasiJalan,DumyString);
         System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
         System.Reset(Test);
         System.Append(Test);
         System.Write(Test,IterasiJalan,';M',x,';',Genetic.TotalCost:0:2,';');
         for i := 1 to Genetic.JumGen do
         Begin
           if (Genetic.Gen[i].MesinKe<>0) and
(Kasus.Item[Genetic.Gen[i].ItemKe].Nama[1]<>'*') then
             if i<Genetic.JumGen then
System.Write(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Operasi
Ke,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe,';')
             Else
System.Writeln(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Opera
siKe,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe);
         End;
         System.Close(Test);
       End;
     End;
     System.Close(FGenetic);
End;
procedure Seleksi;
Var BestMasuk : Integer;
    EfisiensiBest, EfisiensiRata2 : Real;
    MeasureBest, MeasureRata2 : Real;
    TotalEfisiensi : Real;
    AngkaRandom : Real;
Begin
     System.Assign(FGenetic,'Temp\Genetic.gen');
     System.Reset(FGenetic);

     for i := 1 to System.FileSize(FGenetic) do
     Begin
       System.Seek(FGenetic,i-1);
       System.Read(FGenetic,Genetic);
       GenSeleksi[i].Urutan:=i;
       GenSeleksi[i].TotalCost:=Genetic.TotalCost;
     End;

     for i := 1 to System.FileSize(FGenetic)-1 do
       for j := i+1 to System.FileSize(FGenetic) do
       if GenSeleksi[i].TotalCost>GenSeleksi[j].TotalCost then
       Begin
         GenSeleksi[5001]:=GenSeleksi[i];
         GenSeleksi[i]:=GenSeleksi[j];
         GenSeleksi[j]:=GenSeleksi[5001];
       End;

     if IterasiJalan=Parameter.Generasi then
     Begin
       System.Seek(FGenetic,GenSeleksi[1].Urutan-1);
       System.Read(FGenetic,GeneticBest);
     End;

     CostRata2:=0;
     CostGood:=GenSeleksi[1].TotalCost;
```

```
     for i := 1 to Parameter.Populasi-1 do
       for j := i+1 to Parameter.Populasi do
       if GenSeleksi[i].Urutan>GenSeleksi[j].Urutan then
       Begin
         GenSeleksi[5001]:=GenSeleksi[i];
         GenSeleksi[i]:=GenSeleksi[j];
         GenSeleksi[j]:=GenSeleksi[5001];
       End;

     for i := 1 to Parameter.Populasi do
     Begin
       CostRata2:=CostRata2+GenSeleksi[i].TotalCost;
       System.Seek(FGenetic,GenSeleksi[i].Urutan-1);
       System.Read(FGenetic,Genetic);
       System.Seek(FGenetic,i-1);
       System.Write(FGenetic,Genetic);
     End;

     CostRata2:=CostRata2/Parameter.Populasi;

     System.Seek(FGenetic,Parameter.Populasi);
     System.Truncate(FGenetic);

     str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\MeanEfi'+DumyString+'.txt');
     System.Reset(Test);
     System.Append(Test);
     System.Writeln(Test,IterasiJalan,';',CostGood:0:2,';',CostRata2:0:2);
     System.Close(Test);

     Str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\Summary'+DumyString+'.txt');
     System.Reset(Test);
     System.Append(Test);
     for j := 1 to System.FileSize(FGenetic) do
     Begin
       System.Seek(FGenetic,j-1);
       System.Read(FGenetic,Genetic);

       System.Write(Test,IterasiJalan,';',j,';',Genetic.TotalCost:0:2,';');
       for i := 1 to Genetic.JumGen do
       Begin
         if (Genetic.Gen[i].MesinKe<>0) and
(Kasus.Item[Genetic.Gen[i].ItemKe].Nama[1]<>'*') then
           if i<Genetic.JumGen then
System.Write(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Operasi
Ke,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe,';')
           Else
System.Writeln(Test,Kasus.Item[Genetic.Gen[i].ItemKe].Lambang,Genetic.Gen[i].Opera
siKe,'-',Genetic.Gen[i].FraktalKe,'-
',Lokasi.Lokasi[Genetic.Gen[i].MesinKe].Lambang,'-',Genetic.Gen[i].NoMesinKe);
       End;

     End;
     System.Close(Test);
     System.Close(FGenetic);
End;
procedure Penulisan_Hasil;
Begin
     WaktuSelesai:=GetTime;
     WaktuSelesai1:=DateTimetoStr(now);
     Str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\Best'+DumyString+'.txt');
     System.Reset(Test);
     System.Append(Test);
     System.Writeln(Test,'Mulai      : ',WaktuMulai1);
     System.Writeln(Test,'Selesai    : ',WaktuSelesai1);
     DumyString:=TimetoStr(WaktuSelesai-WaktuMulai);
     TIterasi.Text:=DumyString;
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     System.Writeln(Test,'Waktu      : ',DumyString);
     System.Writeln(Test,'Total OMH  : ',GeneticBest.TotalCost:0:2);
     Str(GeneticBest.TotalCost:0:2,DumyString);
     TCost.Text:=DumyString;
     System.Writeln(Test);
     System.Writeln(Test,'No;Item;Mesin;Qty Produksi;OMH');
     {System.Writeln(Test,'No;Item;Mesin;Handling;Qty Produksi;Cost');}

     Tampilan.JumGen:=0;
     for i := 1 to GeneticBest.JumGen do
     Begin
       if GeneticBest.Gen[i].Produksi>0 then
       Begin
         Tampilan.JumGen:=Tampilan.JumGen+1;

Tampilan.Gen[Tampilan.JumGen].Item:=Kasus.Item[GeneticBest.Gen[i].ItemKe].Nama;
         Str(GeneticBest.Gen[i].FraktalKe,Tampilan.Gen[Tampilan.JumGen].Mesin);

Tampilan.Gen[Tampilan.JumGen].Mesin:=Tampilan.Gen[Tampilan.JumGen].Mesin+'-
'+Lokasi.Lokasi[GeneticBest.Gen[i].MesinKe].Nama;
         Str(GeneticBest.Gen[i].NoMesinKe,DumyString);

Tampilan.Gen[Tampilan.JumGen].Mesin:=Tampilan.Gen[Tampilan.JumGen].Mesin+'-
'+DumyString;

Str(GeneticBest.Gen[i].Produksi:0:2,Tampilan.Gen[Tampilan.JumGen].Produksi);
         Str(GeneticBest.Gen[i].Cost:0:2,Tampilan.Gen[Tampilan.JumGen].Cost);

{Tampilan.Gen[Tampilan.JumGen].Handling:=Kasus.Item[GeneticBest.Gen[i].ItemKe].Ope
rasi[GeneticBest.Gen[i].OperasiKe].Handling; }
       End;
     End;

     for i := 1 to Tampilan.JumGen do
     Begin
       System.Write(Test,i,';');
       System.Write(Test,Tampilan.Gen[i].Item,';');
       System.Write(Test,Tampilan.Gen[i].Mesin,';');
       {System.Write(Test,Tampilan.Gen[i].Handling,';'); }
       System.Write(Test,Tampilan.Gen[i].Produksi,';');
       System.Writeln(Test,Tampilan.Gen[i].Cost);
     End;
     System.Writeln(Test);
     System.Close(Test);


     Str(ReplikasiJalan,DumyString);
     System.Assign(Test,'Solusi\DetailBest'+DumyString+'.txt');
     System.Rewrite(Test);
     System.Reset(Test);
     System.Append(Test);

System.Writeln(Test,'Item;Material;Kebutuhan;Produksi;Volume;Weight;Dari;Ke;Kapasi
tas;Waktu;Jumlah Produksi;Jumlah Pindah;Frekuensi;Jarak;Handling;Cost;Total OMH');
     System.Close(Test);
     Genetic:=GeneticBest;
     Total_Cost_Tampil;

End;
Procedure Tampilan_Layar;
Begin
     if Tampilan.JumGen>=1 then
     Begin
       No1.Text:='1';
       Item1.Text:=Tampilan.Gen[1].Item;
       Mesin1.Text:=Tampilan.Gen[1].Mesin;
       Qty1.Text:=Tampilan.Gen[1].Produksi;
       Cost1.Text:=Tampilan.Gen[1].Cost;
       {Handling1.Text:=Tampilan.Gen[1].Handling;}
     End;
```

```
     if Tampilan.JumGen>=2 then
     Begin
       No2.Text:='2';
       Item2.Text:=Tampilan.Gen[2].Item;
       Mesin2.Text:=Tampilan.Gen[2].Mesin;
       Qty2.Text:=Tampilan.Gen[2].Produksi;
       Cost2.Text:=Tampilan.Gen[2].Cost;
       {Handling2.Text:=Tampilan.Gen[2].Handling;}
     End;
     if Tampilan.JumGen>=3 then
     Begin
       No3.Text:='3';
       Item3.Text:=Tampilan.Gen[3].Item;
       Mesin3.Text:=Tampilan.Gen[3].Mesin;
       Qty3.Text:=Tampilan.Gen[3].Produksi;
       Cost3.Text:=Tampilan.Gen[3].Cost;
       {Handling3.Text:=Tampilan.Gen[3].Handling;}
     End;
     if Tampilan.JumGen>=4 then
     Begin
       No4.Text:='4';
       Item4.Text:=Tampilan.Gen[4].Item;
       Mesin4.Text:=Tampilan.Gen[4].Mesin;
       Qty4.Text:=Tampilan.Gen[4].Produksi;
       Cost4.Text:=Tampilan.Gen[4].Cost;
       {Handling4.Text:=Tampilan.Gen[4].Handling;}
     End;
     if Tampilan.JumGen>4 then
     Begin
       SB.Enabled:=True;
       SB.Position:=1;
       SB.Min:=1;
       SB.Max:=Tampilan.JumGen-3;
       SB.SmallChange:=1;
       SB.LargeChange:=3;
     End;
End;
begin
     Val(TReplikasi.Text,Replikasi,i);
     Cleansing_Layar;

     PBReplikasi.Min:=0;
     PBReplikasi.Max:=Replikasi;
     PBReplikasi.Position:=0;
     for ReplikasiJalan := 1 to Replikasi do
     Begin
       Create_File;
       PBGenerasi.Min:=0;
       PBGenerasi.Max:=Parameter.Generasi;
       PBGenerasi.Position:=0;

       IterasiJalan:=0;
       PopulasiJalan:=0;
       CostRata2:=0;
       for PopulasiJalan := 1 to Parameter.Populasi do
       Begin
         Solusi_Awal;
         System.Assign(FGenetic,'Temp\Genetic.gen');
         System.Reset(FGenetic);
         System.Seek(FGenetic,PopulasiJalan-1);
         System.Write(FGenetic,Genetic);
         System.Close(FGenetic);
         if (PopulasiJalan=1) or (CostGood>Genetic.TotalCost) then
           CostGood:=Genetic.TotalCost;
         CostRata2:=CostRata2+Genetic.TotalCost;
       End;
       CostRata2:=CostRata2/Parameter.Populasi;
       str(ReplikasiJalan,DumyString);
       System.Assign(Test,'Solusi\MeanEfi'+DumyString+'.txt');
       System.Reset(Test);
```

```
        System.Append(Test);
        System.Writeln(Test,IterasiJalan,';',CostGood:0:2,';',CostRata2:0:2);
        System.Close(Test);

        For IterasiJalan := 1 to Parameter.Generasi do
        Begin
          CrossOver;
          Mutasi;
          Seleksi;
          PBGenerasi.Position:=IterasiJalan;
        End;
        Penulisan_Hasil;
        PBReplikasi.Position:=ReplikasiJalan;
      End;
      Tampilan_Layar;
end;

procedure TFormProses.CButtonClick(Sender: TObject);
Var n : Integer;
begin

      System.Assign(FKasus,'Case\'+TCase.Text+'.kss');
      {$I-}
      System.Reset(Fkasus);
      {$I+}
      n:=IORESULT;
      System.Reset(FKasus);
      System.Seek(FKasus,0);
      Read(FKasus,Kasus);
      System.Close(FKasus);

      if n=0 then
      Begin
        Click1:=1;
        LCase.Caption:=TCase.Text;
      End;

      System.Assign(FHandling,'Case\'+TCase.Text+'.han');
      System.Reset(FHandling);
      System.Seek(FHandling,0);
      System.Read(FHandling,Handling);
      System.Close(FHandling);

      System.Assign(FLokasi,'Case\'+TCase.Text+'.lok');
      System.Reset(FLokasi);
      System.Seek(FLokasi,0);
      System.Read(FLokasi,Lokasi);
      System.Close(FLokasi);
      LocatorTemp.JumLokasi:=Lokasi.JumLokasi;
      for i := 1 to Lokasi.JumLokasi do
      Begin
        LocatorTemp.Lokasi[i].Nama:=Lokasi.Lokasi[i].Nama;
        LocatorTemp.Lokasi[i].Lambang:=Lokasi.Lokasi[i].Lambang;
        for j := 1 to 6 do
        Begin
          LocatorTemp.Lokasi[i].Fraktal[j].JumMesin:=Lokasi.Lokasi[i].Fraktal[j];
          for k := 1 to Lokasi.Lokasi[i].Fraktal[j] do
          Begin

LocatorTemp.Lokasi[i].Fraktal[j].MesinKe[k].Kapasitas:=Lokasi.Lokasi[i].Kapasitas;

LocatorTemp.Lokasi[i].Fraktal[j].MesinKe[k].Sisa:=Lokasi.Lokasi[i].Kapasitas;
          End;
        End;
      End;

      System.Assign(FOptions,'Case\'+TCase.Text+'.opt');
      System.Reset(FOptions);
      System.Seek(FOptions,0);
      System.Read(FOptions,Options);
```

```
     System.Close(FOptions);

     System.Assign(FOpTotal,'Case\'+TCase.Text+'.ott');
     System.Reset(FOpTotal);
     System.Seek(FOpTotal,0);
     System.Read(FOpTotal,OpTotal);
     System.Close(FOpTotal);

     System.Assign(FKromosom,'Case\'+TCase.Text+'.krm');
     System.Reset(FKromosom);
     System.Seek(FKromosom,0);
     System.Read(FKromosom,Kromosom);
     System.Close(FKromosom);

Kromosom.JumGen:=OpTotal.Item[OpTotal.JumItem].Mesin[OpTotal.Item[OpTotal.JumItem]
.JumMesin].Ke;

     Str(Lokasi.JumLokasi,DumyString);
     TLokasi.Text:=DumyString;

     Str(Handling.JumHandling,DumyString);
     THandling.Text:=DumyString;

     Str(Kasus.JumItem,DumyString);
     TItem.Text:=DumyString;

     TCase.Text:='';

     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;

procedure TFormProses.FormCreate(Sender: TObject);
begin
     Randomize;
     Click1:=0;
     Click2:=0;
end;

procedure TFormProses.PButtonClick(Sender: TObject);
var n : integer;
begin
     System.Assign(FParameter,'Parameter\'+TParameter.Text+'.prm');
     {$I-}
     Reset(FParameter);
     {$I+}
     n:=IORESULT;
     Reset(FParameter);
     System.Seek(FParameter,0);
     Read(FParameter,Parameter);
     System.Close(FParameter);

     if n=0 then
     Begin
          Click2:=1;
          Str(Parameter.Populasi,DumyString);
          TPopulasi.Text:=DumyString;
          Str(Parameter.Generasi,DumyString);
          TGenerasi.Text:=DumyString;
          Str(Parameter.Pc:0:4,DumyString);
          TPc.Text:=DumyString;
          Str(Parameter.Pm:0:4,DumyString);
          TPm.Text:=DumyString;
     End;
     TParameter.Text:='';

     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;
```

```
procedure TFormProses.SBChange(Sender: TObject);
begin
     str(SB.Position+1-1,DumyString);
     No1.Text:=DumyString;
     str(SB.Position+2-1,DumyString);
     No2.Text:=DumyString;
     str(SB.Position+3-1,DumyString);
     No3.Text:=DumyString;
     str(SB.Position+4-1,DumyString);
     No4.Text:=DumyString;
     Item1.Text:=Tampilan.Gen[SB.Position+1-1].Item;
     Item2.Text:=Tampilan.Gen[SB.Position+2-1].Item;
     Item3.Text:=Tampilan.Gen[SB.Position+3-1].Item;
     Item4.Text:=Tampilan.Gen[SB.Position+4-1].Item;
     Mesin1.Text:=Tampilan.Gen[SB.Position+1-1].Mesin;
     Mesin2.Text:=Tampilan.Gen[SB.Position+2-1].Mesin;
     Mesin3.Text:=Tampilan.Gen[SB.Position+3-1].Mesin;
     Mesin4.Text:=Tampilan.Gen[SB.Position+4-1].Mesin;
     Qty1.Text:=Tampilan.Gen[SB.Position+1-1].Produksi;
     Qty2.Text:=Tampilan.Gen[SB.Position+2-1].Produksi;
     Qty3.Text:=Tampilan.Gen[SB.Position+3-1].Produksi;
     Qty4.Text:=Tampilan.Gen[SB.Position+4-1].Produksi;
     Cost1.Text:=Tampilan.Gen[SB.Position+1-1].Cost;
     Cost2.Text:=Tampilan.Gen[SB.Position+2-1].Cost;
     Cost3.Text:=Tampilan.Gen[SB.Position+3-1].Cost;
     Cost4.Text:=Tampilan.Gen[SB.Position+4-1].Cost;
     {Handling1.Text:=Tampilan.Gen[SB.Position+1-1].Handling;
     Handling2.Text:=Tampilan.Gen[SB.Position+2-1].Handling;
     Handling3.Text:=Tampilan.Gen[SB.Position+3-1].Handling;
     Handling4.Text:=Tampilan.Gen[SB.Position+4-1].Handling;}
end;

procedure TFormProses.TCaseChange(Sender: TObject);
begin
     if TCase.Text<>'' then CButton.Enabled:=True;
     if TCase.Text='' then CButton.Enabled:=False;
end;

procedure TFormProses.TCaseKeyPress(Sender: TObject; var Key: Char);
begin
     if Key = #13 then CButton.Click;
end;

procedure TFormProses.TGenerasiChange(Sender: TObject);
begin
     Val(TGenerasi.Text,Parameter.Generasi,i);
     if (TGenerasi.Text<>'') and (TPopulasi.Text<>'') and (TPC.Text<>'') and
(TPm.Text<>'') then CLick2:=1;
     if (TGenerasi.Text='') or (TPopulasi.Text='') or (TPC.Text='') or
(TPm.Text='') then CLick2:=0;
     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;

procedure TFormProses.TParameterChange(Sender: TObject);
begin
     if TParameter.Text<>'' then PButton.Enabled:=True;
     if TParameter.Text='' then PButton.Enabled:=False;
end;

procedure TFormProses.TParameterKeyPress(Sender: TObject; var Key: Char);
begin
     if Key = #13 then PButton.Click;
end;

procedure TFormProses.TPcChange(Sender: TObject);
begin
     Val(TPc.Text,Parameter.Pc,i);
     if (TGenerasi.Text<>'') and (TPopulasi.Text<>'') and (TPC.Text<>'') and
(TPm.Text<>'') then CLick2:=1;
```

```
     if (TGenerasi.Text='') or (TPopulasi.Text='') or (TPC.Text='') or
(TPm.Text='') then CLick2:=0;
     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;

procedure TFormProses.TPmChange(Sender: TObject);
begin
     Val(TPm.Text,Parameter.Pm,i);
     if (TGenerasi.Text<>'') and (TPopulasi.Text<>'') and (TPC.Text<>'') and
(TPm.Text<>'') then CLick2:=1;
     if (TGenerasi.Text='') or (TPopulasi.Text='') or (TPC.Text='') or
(TPm.Text='') then CLick2:=0;
     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;

procedure TFormProses.TPopulasiChange(Sender: TObject);
begin
     Val(TPopulasi.Text,Parameter.Populasi,i);
     if (TGenerasi.Text<>'') and (TPopulasi.Text<>'') and (TPC.Text<>'') and
(TPm.Text<>'') then CLick2:=1;
     if (TGenerasi.Text='') or (TPopulasi.Text='') or (TPC.Text='') or
(TPm.Text='') then CLick2:=0;
     if (Click1+Click2)= 2 then BProses.Enabled:=True;
     if (Click1+Click2)< 2 then BProses.Enabled:=False;
end;

end.
```