

1. Lampiran 1 Peramalan Metode Linier Trend

PERIODE	PERMINTAAN	t*Y(t)	t^2	PERAMALAN	ERROR Y(t)-Y'(t)	Abs. E	E^2	Abs. E / Y(t)
1	3.686	3.686	1	3.603	82,62	82,62	6.825,51	0,02
2	3.747	7.494	4	3.630	116,82	116,82	13.646,13	0,03
3	3.735	11.205	9	3.657	78,02	78,02	6.086,60	0,02
4	3.809	15.236	16	3.684	125,22	125,22	15.679,21	0,03
5	3.796	18.980	25	3.711	85,42	85,42	7.296,01	0,02
6	3.686	22.116	36	3.737	-51,38	51,38	2.640,25	0,01
7	3.784	26.488	49	3.764	19,82	19,82	392,70	0,01
8	3.821	30.568	64	3.791	30,02	30,02	901,00	0,01
9	3.905	35.145	81	3.818	87,22	87,22	7.606,75	0,02
10	3.529	35.290	100	3.845	-315,58	315,58	99.592,84	0,09
11	3.906	42.966	121	3.871	34,62	34,62	1.198,31	0,01
12	4.127	49.524	144	3.898	228,82	228,82	52.357,07	0,06
13	3.710	48.230	169	3.925	-214,98	214,98	46.217,83	0,06
14	3.686	51.604	196	3.952	-265,78	265,78	70.640,78	0,07
15	3.846	57.690	225	3.979	-132,58	132,58	17.578,34	0,03
16	3.624	57.984	256	4.005	-381,38	381,38	145.453,25	0,11
17	4.018	68.306	289	4.032	-14,18	14,18	201,17	0,00
18	4.067	73.206	324	4.059	8,02	8,02	64,27	0,00
19	3.956	75.164	361	4.086	-129,78	129,78	16.843,71	0,03
20	3.944	78.880	400	4.113	-168,58	168,58	28.420,34	0,04
21	4.263	89.523	441	4.139	123,62	123,62	15.281,08	0,03
22	4.141	91.102	484	4.166	-25,18	25,18	634,20	0,01
23	4.300	98.900	529	4.193	107,02	107,02	11.452,57	0,02
24	4.792	115.008	576	4.220	572,22	572,22	327.431,91	0,12
25			625	4.247				
26			676	4.273				
27			729	4.300				
28			784	4.327				
29			841	4.354				
30			900	4.381				
31			961	4.407				
32			1.024	4.434				
33			1.089	4.461				
34			1.156	4.488				
35			1.225	4.515				
36			1.296	4.541				
300	93.878	1.204.295	4.900	93.878	0,00	3.398,87	894.441,83	0,86

b	26,8
a	3576,583333

ME	-1,7053E-13
MAD	141,6194444
MSE	37268,40972
MAPE	3,596444472

2. Lampiran Peramalan Metode Quadratic Trend

Periode	Permintaan (pcs)	t ²	t ³	t ⁴	t*Y(t)	t ² *Y(t)	PERAMALAN	ERROR	Abs. E	E ²	Abs. E / Y(t)
1	3.686	1	1	1	3.686	3.686	3.826	-140,33	140,33	19.693,80	0,04
2	3.747	4	8	16	7.494	14.988	3.795	-47,97	47,97	2.301,45	0,01
3	3.735	9	27	81	11.205	33.615	3.769	-33,90	33,90	1.149,18	0,01
4	3.809	16	64	256	15.236	60.944	3.748	60,89	60,89	3.707,21	0,02
5	3.796	25	125	625	18.980	94.900	3.733	63,39	63,39	4.017,77	0,02
6	3.686	36	216	1.296	22.116	132.696	3.722	-36,40	36,40	1.325,14	0,01
7	3.784	49	343	2.401	26.488	185.416	3.717	66,52	66,52	4.425,16	0,02
8	3.821	64	512	4.096	30.568	244.544	3.718	103,16	103,16	10.641,74	0,03
9	3.905	81	729	6.561	35.145	316.305	3.723	181,51	181,51	32.945,27	0,05
10	3.529	100	1.000	10.000	35.290	352.900	3.734	-205,43	205,43	42.201,30	0,06
11	3.906	121	1.331	14.641	42.966	472.626	3.751	155,35	155,35	24.132,14	0,04
12	4.127	144	1.728	20.736	49.524	594.288	3.772	354,83	354,83	125.906,18	0,09
13	3.710	169	2.197	28.561	48.230	626.990	3.799	-88,97	88,97	7.915,20	0,02
14	3.686	196	2.744	38.416	51.604	722.456	3.831	-145,05	145,05	21.040,89	0,04
15	3.846	225	3.375	50.625	57.690	865.350	3.868	-22,43	22,43	503,08	0,01
16	3.624	256	4.096	65.536	57.984	927.744	3.911	-287,09	287,09	82.421,64	0,08
17	4.018	289	4.913	83.521	68.306	1.161.202	3.959	58,96	58,96	3.476,14	0,01
18	4.067	324	5.832	104.976	73.206	1.317.708	4.012	54,72	54,72	2.994,48	0,01
19	3.956	361	6.859	130.321	75.164	1.428.116	4.071	-114,80	114,80	13.179,59	0,03
20	3.944	400	8.000	160.000	78.880	1.577.600	4.135	-190,61	190,61	36.333,73	0,05
21	4.263	441	9.261	194.481	89.523	1.879.983	4.204	59,29	59,29	3.514,93	0,01
22	4.141	484	10.648	234.256	91.102	2.004.244	4.278	-137,10	137,10	18.796,30	0,03
23	4.300	529	12.167	279.841	98.900	2.274.700	4.358	-57,77	57,77	3.337,77	0,01
24	4.792	576	13.824	331.776	115.008	2.760.192	4.443	349,27	349,27	121.986,31	0,07
25		625	15.625	390.625			4.533				
26		676	17.576	456.976			4.629				
27		729	19.683	531.441			4.729				
28		784	21.952	614.656			4.835				
29		841	24.389	707.281			4.947				
30		900	27.000	810.000			5.064				
31		961	29.791	923.521			5.186				
32		1.024	32.768	1.048.576			5.313				
33		1.089	35.937	1.185.921			5.445				
34		1.156	39.304	1.336.336			5.583				
35		1.225	42.875	1.500.625			5.726				
36		1.296	46.656	1.679.616			5.875				
300	93.878	4.900	90.000	1.763.020	1.204.295	20.053.193	93.878	0,00	3.015,74	587.946,39	0,76

γ	-18302480
δ	-739680
θ	-21274432
α	-690000
β	-27600
b	-39,29227729
c	2,643691092
a	3862,983202

ME	2,84217E-13
MAD	125,6560391
MSE	24497,76616
MAPE	3,186374114

3. Lampiran Peramalan Metode DES (A = 0,1)

Periode	Permintaan (pcs)	S ^t	S ^t	S ^t - S ^t	a	b	PERAMALAN Y ^(t)	ERROR
1	3.686	3.686	3.686	0	3.686	0		
2	3.747	3.692	3.687	5	3.698	1	3.686	61
3	3.735	3.696	3.688	9	3.705	1	3.698	37
4	3.809	3.708	3.690	18	3.726	2	3.706	103
5	3.796	3.716	3.692	24	3.741	3	3.728	68
6	3.686	3.713	3.694	19	3.732	2	3.743	-57
7	3.784	3.720	3.697	23	3.744	3	3.735	49
8	3.821	3.731	3.700	30	3.761	3	3.747	74
9	3.905	3.748	3.705	43	3.791	5	3.764	141
10	3.529	3.726	3.707	19	3.745	2	3.796	-267
11	3.906	3.744	3.711	33	3.777	4	3.747	159
12	4.127	3.782	3.718	64	3.847	7	3.781	346
13	3.710	3.775	3.724	51	3.827	6	3.854	-144
14	3.686	3.766	3.728	38	3.804	4	3.832	-146
15	3.846	3.774	3.733	42	3.816	5	3.809	37
16	3.624	3.759	3.735	24	3.783	3	3.820	-196
17	4.018	3.785	3.740	45	3.830	5	3.786	232
18	4.067	3.813	3.748	66	3.879	7	3.835	232
19	3.956	3.828	3.756	72	3.900	8	3.886	70
20	3.944	3.839	3.764	75	3.914	8	3.908	36
21	4.263	3.882	3.776	106	3.987	12	3.923	340
22	4.141	3.908	3.789	119	4.026	13	3.999	142
23	4.300	3.947	3.805	142	4.089	16	4.039	261
24	4.792	4.031	3.827	204	4.235	23	4.105	687
25							4.258	-4.258
26							4.281	-4.281
27							4.303	-4.303
28							4.326	-4.326
29							4.349	-4.349
30							4.371	-4.371
31							4.394	-4.394
32							4.417	-4.417
33							4.439	-4.439
34							4.462	-4.462
35							4.485	-4.485
36							4.507	-4.507
300	93.878	90.770	89.499	1.272	92.042	141	140.516	-50.324

α 0,1

α	0,1
----------	-----

ME	-2096,84587
MAD	2353,23624
MSE	9653905,20451
MAPE	3,99006

4. Lampiran Peramalan Metode DES (A = 0,5)

PERIODE (t)	PERMINTAAN	S _t	S ^t	S _t - S ^t	a	b	PERAMALAN	ERROR	α	0,5
1	3.686	3.686	3.686	0	3.686	0				
2	3.747	3.717	3.701	15	3.732	15	3.686	61		
3	3.735	3.726	3.714	12	3.738	12	3.747	-12		
4	3.809	3.767	3.740	27	3.794	27	3.750	59		
5	3.796	3.782	3.761	21	3.802	21	3.821	-25		
6	3.686	3.734	3.747	-14	3.720	-14	3.823	-137		
7	3.784	3.759	3.753	6	3.765	6	3.707	77		
8	3.821	3.790	3.772	18	3.808	18	3.770	51		
9	3.905	3.847	3.810	38	3.885	38	3.827	78		
10	3.529	3.688	3.749	-61	3.628	-61	3.923	-394		
11	3.906	3.797	3.773	24	3.821	24	3.567	339		
12	4.127	3.962	3.868	95	4.057	95	3.845	282		
13	3.710	3.836	3.852	-16	3.820	-16	4.151	-441		
14	3.686	3.761	3.806	-45	3.716	-45	3.805	-119		
15	3.846	3.804	3.805	-1	3.802	-1	3.670	176		
16	3.624	3.714	3.759	-46	3.668	-46	3.801	-177		
17	4.018	3.866	3.813	53	3.919	53	3.623	395		
18	4.067	3.966	3.890	77	4.043	77	3.972	95		
19	3.956	3.961	3.925	36	3.997	36	4.120	-164		
20	3.944	3.953	3.939	14	3.966	14	4.033	-89		
21	4.263	4.108	4.023	84	4.192	84	3.980	283		
22	4.141	4.124	4.074	51	4.175	51	4.277	-136		
23	4.300	4.212	4.143	69	4.281	69	4.225	75		
24	4.792	4.502	4.323	180	4.682	180	4.351	441		
25							4.861	-4.861		
26							5.041	-5.041		
27							5.220	-5.220		
28							5.400	-5.400		
29							5.579	-5.579		
30							5.759	-5.759		
31							5.938	-5.938		
32							6.118	-6.118		
33							6.297	-6.297		
34							6.477	-6.477		
35							6.656	-6.656		
36							6.836	-6.836		
300	93.878	93.062	92.425	637	93.698	637	159.656	-69.464		

ME	-2894,348015
MAD	3095,325541
MSE	17343111,28
MAPE	4,329750239

5. Lampiran Peramalan Metode DES (A = 0,9)

PERIODE (t)	PERMINTAAN Y(t)	S ^t	S ^t	S ^t - S ^t	a	b	PERAMALAN Y ^(t)	ERROR
1	3.686	3.686	3.686	0	3.686	0		
2	3.747	3.741	3.735	5	3.746	49	3.686	61
3	3.735	3.736	3.736	0	3.736	0	3.796	-61
4	3.809	3.802	3.795	7	3.808	59	3.736	73
5	3.796	3.797	3.796	0	3.797	1	3.868	-72
6	3.686	3.697	3.707	-10	3.687	-89	3.798	-112
7	3.784	3.775	3.768	7	3.782	61	3.598	186
8	3.821	3.816	3.812	5	3.821	43	3.844	-23
9	3.905	3.896	3.888	8	3.905	76	3.864	41
10	3.529	3.566	3.598	-32	3.534	-290	3.981	-452
11	3.906	3.872	3.845	27	3.899	247	3.244	662
12	4.127	4.101	4.076	26	4.127	231	4.146	-19
13	3.710	3.749	3.782	-33	3.716	-294	4.358	-648
14	3.686	3.692	3.701	-9	3.683	-81	3.422	264
15	3.846	3.831	3.818	13	3.844	116	3.603	243
16	3.624	3.645	3.662	-17	3.627	-156	3.960	-336
17	4.018	3.981	3.949	32	4.013	287	3.472	546
18	4.067	4.058	4.047	11	4.069	99	4.299	-232
19	3.956	3.966	3.974	-8	3.958	-73	4.168	-212
20	3.944	3.946	3.949	-3	3.943	-25	3.885	59
21	4.263	4.231	4.203	28	4.260	254	3.918	345
22	4.141	4.150	4.155	-5	4.145	-48	4.514	-373
23	4.300	4.285	4.272	13	4.298	117	4.097	203
24	4.792	4.741	4.694	47	4.788	422	4.415	377
25							5.211	-5.211
26							5.633	-5.633
27							6.055	-6.055
28							6.478	-6.478
29							6.900	-6.900
30							7.322	-7.322
31							7.745	-7.745
32							8.167	-8.167
33							8.589	-8.589
34							9.012	-9.012
35							9.434	-9.434
36							9.856	-5.064
300	93.878	93.761	93.649	112	93.873	1.008	180.072	-85.088

α	0,9
ME	-3545,317484
MAD	3800,373356
MSE	26552114,87
MAPE	5,956161111

6. Akurasi Peramalan

Akurasi Peramalan	Linier	kuadrat	DES			MAPE Minimum
			α 0.1	α 0.5	α 0.9	
MAD	141,6194444	125,6560391	2353,236237	3095,325541	3800,373356	3,186374114
MSE	37268,40972	24497,76616	9653905,205	17343111,28	26552114,87	
MAPE	3,596444472	3,186374114	3,990063117	4,329750239	5,956161111	

7. Perhitungan MRP Dengan Teknik Lot For Lot (LFL)

BAHAN BAKU	Polypropylene	LOT SIZE	LFL										
PERSEDIAAN	14122	LEAD TIME	1 BULAN										
BAHAN BAKU	Polypropylene	LOT SIZE	LFL										
PERSEDIAAN	14122	LEAD TIME	1 BULAN										
PERIODE	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Agust	Sep	Okt	Nop	Des	
GROSS REQUIREMENT	4.533	4.629	4.729	4.835	4.947	5.064	5.186	5.313	5.445	5.583	5.726	5.875	
SCHEDULE RECEIPTS													
PROJECT ON HAND	9.589	4.960	231	-	-	-	-	-	-	-	-	-	
NET REQUIREMENT				4.604									
PLANNED ORDER RECEIPTS				4.604	4.947	5.064	5.186	5.313	5.445	5.583	5.726	5.875	
PLANNED ORDER REALEASE			4.604	4.947	5.064	5.186	5.313	5.445	5.583	5.726	5.875		
BIAYA PESAN	Rp180.000												
BIAYA SIMPAN	Rp73.900												
BIAYA PEMBELIAN	907117000												
TOTAL BIAYA	907370900												

8. Perhitungan MRP Dengan Teknik EOQ

BAHAN BAKU	PP	LOT SIZE	EOQ (9.949)	LOT SIZE	EOQ (9949)
PERSEDIAAN	14122	LEAD TIME	1 BULAN	LEAD TIME	1 BULAN

PERIODE	1	2	3	4	5	6	7	8	9	10	11	12
GROSS REQUIREMENT	4533	4629	4729	4835	4947	5064	5186	5313	5445	5583	5726	5875
SCHEDULE RECEIPTS												
PROJECT ON HAND	9589	4960	231	5345	398	5283	97	4733	9237	3654	7877	2002
NET REQUIREMENT												
PLANNED ORDER RECEIPTS				9949		9949		9949	9949		9949	
PLANNED ORDER RELEASE			9949		9949		9949	9949		9949		

BIAYA PESAN	Rp100.000
BIAYA SIMPAN	Rp267.030
BIAYA PEMBELIAN	Rp945.155.000
TOTAL BIAYA	Rp945.522.030

9. Perhitungan MRP Dengan Teknik FPR

BAHAN BAKU	PP	LOT SIZE	FPR (2 PERIODE)
PERSEDIAAN	14122	LEAD TIME	1 BULAN

PERIODE	1	2	3	4	5	6	7	8	9	10	11	12
GROSS REQUIREMENT	4533	4628	4729	4835	4947	5063	5185	5312	5445	5583	5726	5874
SCHEDULE RECEIPTS												
PROJECT ON HAND	9589	4961	232	10010	5063	0	10757	5445	0	11600	5874	0
NET REQUIREMENT				4603			5185			5583		
PLANNED ORDER RECEIPTS				14613			15942			17183		
PLANNED ORDER RELEASE			14613			15942			17183			

BIAYA PESAN	Rp60.000
BIAYA SIMPAN	Rp317.655
BIAYA PEMBELIAN	Rp907.022.000
TOTAL BIAYA	Rp907.399.655