

LAMPIRAN

Lampiran A. Transkrip Wawancara

Wawancara Objek Penelitian

Narasumber : Bapak Bowi Jaya

Jabatan : *Chief Marketing Office* PT. *Natura Prima Beauty*

1. Bisakah Anda jelaskan secara singkat mengenai PT. *Natura Prima Beauty*?

Jawaban:

PT. *Natura Prima Beauty* merupakan perusahaan yang bergerak dibidang distributor pemasaran produk kecantikan berbasis jaringan. Untuk selengkapnya silakan kunjungi situs PT. *Natura Prima Beauty* di www.naturaworld.co.id.

2. Berapa jenis produk yang dijual di PT. *Natura Prima Beauty*?

Jawaban:

Sementara ini ada 3 jenis produk yang dijual oleh PT. *Natura Prima Beauty* yaitu *Natura Beauty Spray* (NBS), *Natura Chocolate Soap* (NCS) dan *Natura Aloe Vera Smoothing Gel* (NAV).

3. Apakah PT. *Natura Prima Beauty* sering mengalami kekurangan atau kehabisan persediaan produk?

Jawaban:

Sering sekali, karena permintaan pelanggan yang terkadang mengalami kenaikan yang tinggi pada periode tertentu. Hal ini yang menyebabkan perusahaan mengeluarkan biaya tambahan seperti biaya transportasi dan lain-lain untuk memenuhi permintaan pelanggan.

4. Bolehkan saya meminta data penjualan produk-produk PT. *Natura Prima Beauty* untuk keperluan Skripsi atau Tugas Akhir saya sebagai mahasiswa Program Studi Teknik Informatika di Universitas Muhammadiyah Jember?

Jawaban:

Boleh, silakan minta sebagian *admin* dan tolong jangan lampirkan atribut data kontak pribadi pelanggan seperti nomor telepon dan semacamnya karena data tersebut merupakan privasi yang dijamin kerahasiaannya oleh perusahaan.

Lampiran B. Perbandingan Nilai Beta

1. Data Hasil Peramalan Penjualan Produk NBS

1.1. $\beta = 0,1$ menghasilkan nilai MAPE = 2,93

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,70	1,70	0,10	2,89
3	Jan-16	595	572,70	22,30	3,76	3,76	0,10	3,75
4	Feb-16	574	574,93	-0,93	3,29	3,48	0,10	0,16
5	Mar-16	592	574,84	17,16	4,68	4,85	0,95	2,90
6	Apr-16	613	591,08	21,92	6,40	6,55	0,97	3,58
7	Mei-16	643	612,24	30,76	8,84	8,97	0,98	4,78
8	Jun-16	650	642,29	7,71	8,72	8,85	0,98	1,19
9	Jul-16	708	649,88	58,12	13,66	13,77	0,99	8,21
10	Agu-16	695	707,20	-12,20	11,08	13,62	0,99	1,76
11	Sep-16	681	695,10	-14,10	8,56	13,66	0,81	2,07
12	Okt-16	690	683,63	6,37	8,34	12,93	0,63	0,92
13	Nov-16		687,62					

1.1.1. $\beta = 0,05$ menghasilkan nilai MAPE = 2,95

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	0,85	0,85	0,05	2,89
3	Jan-16	595	571,85	23,15	1,97	1,97	0,05	3,89
4	Feb-16	574	573,01	0,99	1,92	1,92	0,05	0,17
5	Mar-16	592	573,06	18,94	2,77	2,77	1,00	3,20
6	Apr-16	613	592,00	21,00	3,68	3,68	1,00	3,43
7	Mei-16	643	613,00	30,00	5,00	5,00	1,00	4,67
8	Jun-16	650	643,00	7,00	5,10	5,10	1,00	1,08
9	Jul-16	708	650,00	58,00	7,74	7,74	1,00	8,19
10	Agu-16	695	708,00	-13,00	6,70	8,00	1,00	1,87
11	Sep-16	681	695,00	-14,00	5,67	8,30	0,84	2,06
12	Okt-16	690	683,27	6,73	5,72	8,22	0,68	0,97
13	Nov-16		687,87					

1.1.2. $\beta = 0,06$ menghasilkan nilai MAPE = 2,93

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,02	1,02	0,06	2,89
3	Jan-16	595	572,02	22,98	2,34	2,34	0,06	3,86

4	Feb-16	574	573,40	0,60	2,23	2,23	0,06	0,10
5	Mar-16	592	573,43	18,57	3,21	3,21	1,00	3,14
6	Apr-16	613	592,00	21,00	4,28	4,28	1,00	3,43
7	Mei-16	643	613,00	30,00	5,82	5,82	1,00	4,67
8	Jun-16	650	643,00	7,00	5,89	5,89	1,00	1,08
9	Jul-16	708	650,00	58,00	9,02	9,02	1,00	8,19
10	Agu-16	695	708,00	-13,00	7,70	9,26	1,00	1,87
11	Sep-16	681	695,00	-14,00	6,40	9,54	0,83	2,06
12	Okt-16	690	683,36	6,64	6,41	9,37	0,67	0,96
13	Nov-16		687,81					

1.1.3. $\beta = 0,07$ menghasilkan nilai MAPE = 2,92

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,19	1,19	0,07	2,89
3	Jan-16	595	572,19	22,81	2,70	2,70	0,07	3,83
4	Feb-16	574	573,79	0,21	2,53	2,53	0,07	0,04
5	Mar-16	592	573,80	18,20	3,63	3,63	1,00	3,07
6	Apr-16	613	592,00	21,00	4,84	4,84	1,00	3,43
7	Mei-16	643	613,00	30,00	6,60	6,60	1,00	4,67
8	Jun-16	650	643,00	7,00	6,63	6,63	1,00	1,08
9	Jul-16	708	650,00	58,00	10,23	10,23	1,00	8,19
10	Agu-16	695	708,00	-13,00	8,60	10,42	1,00	1,87
11	Sep-16	681	695,00	-14,00	7,02	10,67	0,83	2,06
12	Okt-16	690	683,45	6,55	6,99	10,38	0,66	0,95
13	Nov-16		687,76					

1.1.4. $\beta = 0,08$ menghasilkan nilai MAPE = 2,91

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,36	1,36	0,08	2,89
3	Jan-16	595	572,36	22,64	3,06	3,06	0,08	3,81
4	Feb-16	574	574,17	-0,17	2,80	2,83	0,08	0,03
5	Mar-16	592	574,16	17,84	4,01	4,03	0,99	3,01
6	Apr-16	613	591,83	21,17	5,38	5,40	0,99	3,45
7	Mei-16	643	612,87	30,13	7,36	7,38	1,00	4,69
8	Jun-16	650	642,87	7,13	7,34	7,36	1,00	1,10
9	Jul-16	708	649,98	58,02	11,40	11,41	1,00	8,20
10	Agu-16	695	707,85	-12,85	9,46	11,53	1,00	1,85

11	Sep-16	681	695,02	-14,02	7,58	11,73	0,82	2,06
12	Okt-16	690	683,52	6,48	7,49	11,31	0,65	0,94
13	Nov-16		687,71					

1.1.5. $\beta = 0,09$ menghasilkan nilai MAPE = 2,92

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,53	1,53	0,09	2,89
3	Jan-16	595	572,53	22,47	3,41	3,41	0,09	3,78
4	Feb-16	574	574,55	-0,55	3,06	3,16	0,09	0,10
5	Mar-16	592	574,50	17,50	4,36	4,45	0,97	2,96
6	Apr-16	613	591,45	21,55	5,90	5,99	0,98	3,52
7	Mei-16	643	612,56	30,44	8,11	8,19	0,99	4,73
8	Jun-16	650	642,58	7,42	8,05	8,12	0,99	1,14
9	Jul-16	708	649,93	58,07	12,55	12,61	0,99	8,20
10	Agu-16	695	707,51	-12,51	10,30	12,60	1,00	1,80
11	Sep-16	681	695,06	-14,06	8,10	12,74	0,82	2,06
12	Okt-16	690	683,58	6,42	7,95	12,17	0,64	0,93
13	Nov-16		687,66					

1.1.6. $\beta = 0,11$ menghasilkan nilai MAPE = 2,94

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	1,87	1,87	0,11	2,89
3	Jan-16	595	572,87	22,13	4,10	4,10	0,11	3,72
4	Feb-16	574	575,30	-1,30	3,50	3,79	0,11	0,23
5	Mar-16	592	575,16	16,84	4,97	5,23	0,92	2,84
6	Apr-16	613	590,73	22,27	6,87	7,10	0,95	3,63
7	Mei-16	643	611,91	31,09	9,54	9,74	0,97	4,83
8	Jun-16	650	642,01	7,99	9,37	9,55	0,98	1,23
9	Jul-16	708	649,83	58,17	14,74	14,90	0,98	8,22
10	Agu-16	695	706,90	-11,90	11,81	14,57	0,99	1,71
11	Sep-16	681	695,13	-14,13	8,95	14,52	0,81	2,07
12	Okt-16	690	683,68	6,32	8,66	13,62	0,62	0,92
13	Nov-16		687,58					

1.1.7. $\beta = 0,12$ menghasilkan nilai MAPE = 2,95

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	2,04	2,04	0,12	2,89

3	Jan-16	595	573,04	21,96	4,43	4,43	0,12	3,69
4	Feb-16	574	575,68	-1,68	3,70	4,10	0,12	0,29
5	Mar-16	592	575,47	16,53	5,24	5,59	0,90	2,79
6	Apr-16	613	590,38	22,62	7,32	7,63	0,94	3,69
7	Mei-16	643	611,57	31,43	10,22	10,49	0,96	4,89
8	Jun-16	650	641,72	8,28	9,98	10,23	0,97	1,27
9	Jul-16	708	649,78	58,22	15,77	15,98	0,98	8,22
10	Agu-16	695	706,63	-11,63	12,48	15,46	0,99	1,67
11	Sep-16	681	695,15	-14,15	9,29	15,30	0,81	2,08
12	Okt-16	690	683,73	6,27	8,93	14,22	0,61	0,91
13	Nov-16		687,53					

1.1.8. $\beta = 0,13$ menghasilkan nilai MAPE = 2,96

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	2,21	2,21	0,13	2,89
3	Jan-16	595	573,21	21,79	4,76	4,76	0,13	3,66
4	Feb-16	574	576,04	-2,04	3,87	4,40	0,13	0,36
5	Mar-16	592	575,78	16,22	5,48	5,94	0,88	2,74
6	Apr-16	613	590,04	22,96	7,75	8,15	0,92	3,75
7	Mei-16	643	611,21	31,79	10,87	11,22	0,95	4,94
8	Jun-16	650	641,43	8,57	10,57	10,88	0,97	1,32
9	Jul-16	708	649,73	58,27	16,77	17,04	0,97	8,23
10	Agu-16	695	706,37	-11,37	13,12	16,30	0,98	1,64
11	Sep-16	681	695,18	-14,18	9,57	16,03	0,80	2,08
12	Okt-16	690	683,77	6,23	9,13	14,75	0,60	0,90
13	Nov-16		687,49					

1.2. $\beta = 0,2$ menghasilkan nilai MAPE = 3,03

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	3,40	3,40	0,20	2,89
3	Jan-16	595	574,40	20,60	6,84	6,84	0,20	3,46
4	Feb-16	574	578,52	-4,52	4,57	6,38	0,20	0,79
5	Mar-16	592	577,62	14,38	6,53	7,98	0,72	2,43
6	Apr-16	613	587,92	25,08	10,24	11,40	0,82	4,09
7	Mei-16	643	608,45	34,55	15,10	16,03	0,90	5,37
8	Jun-16	650	639,49	10,51	14,18	14,92	0,94	1,62
9	Jul-16	708	649,39	58,61	23,07	23,66	0,95	8,28

10	Agu-16	695	705,09	-10,09	16,44	20,95	0,97	1,45
11	Sep-16	681	695,25	-14,25	10,30	19,61	0,78	2,09
12	Okt-16	690	684,07	5,93	9,42	16,87	0,53	0,86
13	Nov-16		687,18					

1.3. $\beta = 0,3$ menghasilkan nilai MAPE = 3,15

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	5,10	5,10	0,30	2,89
3	Jan-16	595	576,10	18,90	9,24	9,24	0,30	3,18
4	Feb-16	574	581,77	-7,77	4,14	8,80	0,30	1,35
5	Mar-16	592	579,44	12,56	6,66	9,93	0,47	2,12
6	Apr-16	613	585,34	27,66	12,96	15,25	0,67	4,51
7	Mei-16	643	603,91	39,09	20,80	22,40	0,85	6,08
8	Jun-16	650	637,14	12,86	18,42	19,54	0,93	1,98
9	Jul-16	708	649,08	58,92	30,57	31,35	0,94	8,32
10	Agu-16	695	704,62	-9,62	18,51	24,83	0,98	1,38
11	Sep-16	681	695,24	-14,24	8,68	21,66	0,75	2,09
12	Okt-16	690	684,63	5,37	7,69	16,77	0,40	0,78
13	Nov-16		686,78					

1.4. $\beta = 0,4$ menghasilkan nilai MAPE = 3,28

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	6,80	6,80	0,40	2,89
3	Jan-16	595	577,80	17,20	10,96	10,96	0,40	2,89
4	Feb-16	574	584,68	-10,68	2,30	10,85	0,40	1,86
5	Mar-16	592	580,41	11,59	6,02	11,15	0,21	1,96
6	Apr-16	613	582,87	30,13	15,66	18,74	0,54	4,92
7	Mei-16	643	599,14	43,86	26,94	28,79	0,84	6,82
8	Jun-16	650	635,80	14,20	21,84	22,95	0,94	2,18
9	Jul-16	708	649,09	58,91	36,67	37,34	0,95	8,32
10	Agu-16	695	705,16	-10,16	17,94	26,46	0,98	1,46
11	Sep-16	681	695,18	-14,18	5,09	21,55	0,68	2,08
12	Okt-16	690	685,57	4,43	4,83	14,70	0,24	0,64
13	Nov-16		686,62					

1.5. $\beta = 0,5$ menghasilkan nilai MAPE = 3,35

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0

2	Des-15	588	571,00	17,00	8,50	8,50	0,50	2,89
3	Jan-16	595	579,50	15,50	12,00	12,00	0,50	2,61
4	Feb-16	574	587,25	-13,25	-0,63	12,63	0,50	2,31
5	Mar-16	592	580,63	11,38	5,38	12,00	0,05	1,92
6	Apr-16	613	581,19	31,81	18,59	21,91	0,45	5,19
7	Mei-16	643	595,44	47,56	33,08	34,73	0,85	7,40
8	Jun-16	650	635,81	14,19	23,64	24,46	0,95	2,18
9	Jul-16	708	649,32	58,68	41,16	41,57	0,97	8,29
10	Agu-16	695	706,01	-11,01	15,07	26,29	0,99	1,58
11	Sep-16	681	695,11	-14,11	0,48	20,20	0,57	2,07
12	Okt-16	690	687,02	2,98	1,73	11,59	0,02	0,43
13	Nov-16		687,09					

1.6. $\beta = 0,6$ menghasilkan nilai MAPE = 3,29

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	10,20	10,20	0,60	2,89
3	Jan-16	595	581,20	13,80	12,36	12,36	0,60	2,32
4	Feb-16	574	589,48	-15,48	-4,34	14,23	0,60	2,70
5	Mar-16	592	580,19	11,81	5,35	12,78	0,31	1,99
6	Apr-16	613	583,80	29,20	19,66	22,63	0,42	4,76
7	Mei-16	643	596,02	46,98	36,05	37,24	0,87	7,31
8	Jun-16	650	636,83	13,17	22,32	22,80	0,97	2,03
9	Jul-16	708	649,58	58,42	43,98	44,17	0,98	8,25
10	Agu-16	695	706,78	-11,78	10,52	24,74	1,00	1,70
11	Sep-16	681	695,05	-14,05	-4,22	18,33	0,43	2,06
12	Okt-16	690	689,07	0,93	-1,13	7,89	0,23	0,13
13	Nov-16		689,29					

1.7. $\beta = 0,7$ menghasilkan nilai MAPE = 3,22

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	11,90	11,90	0,70	2,89
3	Jan-16	595	582,90	12,10	12,04	12,04	0,70	2,03
4	Feb-16	574	591,37	-17,37	-8,55	15,77	0,70	3,03
5	Mar-16	592	579,21	12,79	6,39	13,68	0,54	2,16
6	Apr-16	613	586,14	26,86	20,72	22,91	0,47	4,38
7	Mei-16	643	598,68	44,32	37,24	37,90	0,90	6,89
8	Jun-16	650	638,77	11,23	19,04	19,23	0,98	1,73

9	Jul-16	708	649,81	58,19	46,45	46,51	0,99	8,22
10	Agu-16	695	707,40	-12,40	5,25	22,63	1,00	1,78
11	Sep-16	681	695,02	-14,02	-8,24	16,60	0,23	2,06
12	Okt-16	690	691,76	-1,76	-3,71	6,22	0,50	0,26
13	Nov-16		690,89					

1.8. $\beta = 0,8$ menghasilkan nilai MAPE = 3,16

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	13,60	13,60	0,80	2,89
3	Jan-16	595	584,60	10,40	11,04	11,04	0,80	1,75
4	Feb-16	574	592,92	-18,92	-12,93	17,34	0,80	3,30
5	Mar-16	592	577,78	14,22	8,79	14,84	0,75	2,40
6	Apr-16	613	588,38	24,62	21,45	22,66	0,59	4,02
7	Mei-16	643	602,96	40,04	36,33	36,57	0,95	6,23
8	Jun-16	650	640,86	9,14	14,58	14,62	0,99	1,41
9	Jul-16	708	649,94	58,06	49,36	49,37	1,00	8,20
10	Agu-16	695	707,81	-12,81	-0,37	20,12	1,00	1,84
11	Sep-16	681	695,00	-14,00	-11,28	15,23	0,02	2,06
12	Okt-16	690	694,74	-4,74	-6,05	6,84	0,74	0,69
13	Nov-16		691,23					

1.9. $\beta = 0,9$ menghasilkan nilai MAPE = 3,00

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	571	0	0	0	0	0	0
2	Des-15	588	571,00	17,00	15,30	15,30	0,90	2,89
3	Jan-16	595	586,30	8,70	9,36	9,36	0,90	1,46
4	Feb-16	574	594,13	-20,13	-17,18	19,05	0,90	3,51
5	Mar-16	592	576,01	15,99	12,67	16,29	0,90	2,70
6	Apr-16	613	590,43	22,57	21,58	21,94	0,78	3,68
7	Mei-16	643	607,98	35,02	33,68	33,71	0,98	5,45
8	Jun-16	650	642,42	7,58	10,19	10,19	1,00	1,17
9	Jul-16	708	649,99	58,01	53,23	53,23	1,00	8,19
10	Agu-16	695	707,98	-12,98	-6,36	17,00	1,00	1,87
11	Sep-16	681	695,00	-14,00	-13,24	14,30	0,37	2,06
12	Okt-16	690	689,76	0,24	-1,11	1,64	0,93	0,03
13	Nov-16		689,98					

2. Data Hasil Peramalan Penjualan Produk NCS Plan A

2.1. $\beta = 0,1$ menghasilkan nilai MAPE = 12,92

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	<i>A</i>	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,10	0,10	0,10	5,88
3	Jan-16	19	16,10	2,90	0,38	0,38	0,10	15,26
4	Feb-16	21	16,39	4,61	0,80	0,80	0,10	21,95
5	Mar-16	23	16,85	6,15	1,34	1,34	1,00	26,73
6	Apr-16	25	23,00	2,00	1,40	1,40	1,00	8,00
7	Mei-16	28	25,00	3,00	1,56	1,56	1,00	10,71
8	Jun-16	32	28,00	4,00	1,81	1,81	1,00	12,50
9	Jul-16	34	32,00	2,00	1,83	1,83	1,00	5,88
10	Agu-16	30	34,00	-4,00	1,24	2,04	1,00	13,33
11	Sep-16	32	30,00	2,00	1,32	2,04	0,61	6,25
12	Okt-16	37	31,22	5,78	1,77	2,41	0,65	15,63
13	Nov-16		34,96					

2.2. $\beta = 0,2$ menghasilkan nilai MAPE = 12,50

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,20	0,20	0,20	5,88
3	Jan-16	19	16,20	2,80	0,72	0,72	0,20	14,74
4	Feb-16	21	16,76	4,24	1,42	1,42	0,20	20,19
5	Mar-16	23	17,61	5,39	2,22	2,22	1,00	23,44
6	Apr-16	25	23,00	2,00	2,17	2,17	1,00	8,00
7	Mei-16	28	25,00	3,00	2,34	2,34	1,00	10,71
8	Jun-16	32	28,00	4,00	2,67	2,67	1,00	12,50
9	Jul-16	34	32,00	2,00	2,54	2,54	1,00	5,88
10	Agu-16	30	34,00	-4,00	1,23	2,83	1,00	13,33
11	Sep-16	32	30,00	2,00	1,38	2,66	0,43	6,25
12	Okt-16	37	30,87	6,13	2,33	3,36	0,52	16,57
13	Nov-16		34,05					

2.3. $\beta = 0,3$ menghasilkan nilai MAPE = 12,14

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,30	0,30	0,30	5,88
3	Jan-16	19	16,30	2,70	1,02	1,02	0,30	14,21
4	Feb-16	21	17,11	3,89	1,88	1,88	0,30	18,52

5	Mar-16	23	18,28	4,72	2,73	2,73	1,00	20,53
6	Apr-16	25	23,00	2,00	2,51	2,51	1,00	8,00
7	Mei-16	28	25,00	3,00	2,66	2,66	1,00	10,71
8	Jun-16	32	28,00	4,00	3,06	3,06	1,00	12,50
9	Jul-16	34	32,00	2,00	2,74	2,74	1,00	5,88
10	Agu-16	30	34,00	-4,00	0,72	3,12	1,00	13,33
11	Sep-16	32	30,00	2,00	1,10	2,78	0,23	6,25
12	Okt-16	37	30,46	6,54	2,73	3,91	0,40	17,67
13	Nov-16		33,05					

2.4. $\beta = 0,4$ menghasilkan nilai MAPE = 11,82

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,40	0,40	0,40	5,88
3	Jan-16	19	16,40	2,60	1,28	1,28	0,40	13,68
4	Feb-16	21	17,44	3,56	2,19	2,19	0,40	16,95
5	Mar-16	23	18,86	4,14	2,97	2,97	1,00	17,98
6	Apr-16	25	23,00	2,00	2,58	2,58	1,00	8,00
7	Mei-16	28	25,00	3,00	2,75	2,75	1,00	10,71
8	Jun-16	32	28,00	4,00	3,25	3,25	1,00	12,50
9	Jul-16	34	32,00	2,00	2,75	2,75	1,00	5,88
10	Agu-16	30	34,00	-4,00	0,05	3,25	1,00	13,33
11	Sep-16	32	30,00	2,00	0,83	2,75	0,02	6,25
12	Okt-16	37	30,03	6,97	3,29	4,44	0,30	18,84
13	Nov-16		32,13					

2.5. $\beta = 0,5$ menghasilkan nilai MAPE = 11,35

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,50	0,50	0,50	5,88
3	Jan-16	19	16,50	2,50	1,50	1,50	0,50	13,16
4	Feb-16	21	17,75	3,25	2,38	2,38	0,50	15,48
5	Mar-16	23	19,38	3,63	3,00	3,00	1,00	15,76
6	Apr-16	25	23,00	2,00	2,50	2,50	1,00	8,00
7	Mei-16	28	25,00	3,00	2,75	2,75	1,00	10,71
8	Jun-16	32	28,00	4,00	3,38	3,38	1,00	12,50
9	Jul-16	34	32,00	2,00	2,69	2,69	1,00	5,88
10	Agu-16	30	34,00	-4,00	-0,66	3,34	1,00	13,33
11	Sep-16	32	30,00	2,00	0,67	2,67	0,20	6,25

12	Okt-16	37	30,39	6,61	3,64	4,64	0,25	17,86
13	Nov-16		32,05					

2.6. $\beta = 0,6$ menghasilkan nilai MAPE = 10,90

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,60	0,60	0,60	5,88
3	Jan-16	19	16,60	2,40	1,68	1,68	0,60	12,63
4	Feb-16	21	18,04	2,96	2,45	2,45	0,60	14,10
5	Mar-16	23	19,82	3,18	2,89	2,89	1,00	13,84
6	Apr-16	25	23,00	2,00	2,36	2,36	1,00	8,00
7	Mei-16	28	25,00	3,00	2,74	2,74	1,00	10,71
8	Jun-16	32	28,00	4,00	3,50	3,50	1,00	12,50
9	Jul-16	34	32,00	2,00	2,60	2,60	1,00	5,88
10	Agu-16	30	34,00	-4,00	-1,36	3,44	1,00	13,33
11	Sep-16	32	30,00	2,00	0,66	2,58	0,40	6,25
12	Okt-16	37	30,79	6,21	3,99	4,76	0,25	16,78
13	Nov-16		32,37					

2.7. $\beta = 0,7$ menghasilkan nilai MAPE = 10,50

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,70	0,70	0,70	5,88
3	Jan-16	19	16,70	2,30	1,82	1,82	0,70	12,11
4	Feb-16	21	18,31	2,69	2,43	2,43	0,70	12,81
5	Mar-16	23	20,19	2,81	2,69	2,69	1,00	12,20
6	Apr-16	25	23,00	2,00	2,21	2,21	1,00	8,00
7	Mei-16	28	25,00	3,00	2,76	2,76	1,00	10,71
8	Jun-16	32	28,00	4,00	3,63	3,63	1,00	12,50
9	Jul-16	34	32,00	2,00	2,49	2,49	1,00	5,88
10	Agu-16	30	34,00	-4,00	-2,05	3,55	1,00	13,33
11	Sep-16	32	30,00	2,00	0,78	2,46	0,58	6,25
12	Okt-16	37	31,16	5,84	4,32	4,83	0,32	15,79
13	Nov-16		33,02					

2.8. $\beta = 0,8$ menghasilkan nilai MAPE = 10,13

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,80	0,80	0,80	5,88
3	Jan-16	19	16,80	2,20	1,92	1,92	0,80	11,58

4	Feb-16	21	18,56	2,44	2,34	2,34	0,80	11,62
5	Mar-16	23	20,51	2,49	2,46	2,46	1,00	10,82
6	Apr-16	25	23,00	2,00	2,09	2,09	1,00	8,00
7	Mei-16	28	25,00	3,00	2,82	2,82	1,00	10,71
8	Jun-16	32	28,00	4,00	3,76	3,76	1,00	12,50
9	Jul-16	34	32,00	2,00	2,35	2,35	1,00	5,88
10	Agu-16	30	34,00	-4,00	-2,73	3,67	1,00	13,33
11	Sep-16	32	30,00	2,00	1,05	2,33	0,74	6,25
12	Okt-16	37	31,49	5,51	4,62	4,88	0,45	14,90
13	Nov-16		33,98					

2.9. $\beta = 0,9$ menghasilkan nilai MAPE = 9,81

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,90	0,90	0,90	5,88
3	Jan-16	19	16,90	2,10	1,98	1,98	0,90	11,05
4	Feb-16	21	18,79	2,21	2,19	2,19	0,90	10,52
5	Mar-16	23	20,78	2,22	2,22	2,22	1,00	9,66
6	Apr-16	25	23,00	2,00	2,02	2,02	1,00	8,00
7	Mei-16	28	25,00	3,00	2,90	2,90	1,00	10,71
8	Jun-16	32	28,00	4,00	3,89	3,89	1,00	12,50
9	Jul-16	34	32,00	2,00	2,19	2,19	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,38	3,82	1,00	13,33
11	Sep-16	32	30,00	2,00	1,46	2,18	0,89	6,25
12	Okt-16	37	31,77	5,23	4,85	4,92	0,67	14,13
13	Nov-16		35,27					

2.9.1. $\beta = 0,91$ menghasilkan nilai MAPE = 9,78

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,91	0,91	0,91	5,88
3	Jan-16	19	16,91	2,09	1,98	1,98	0,91	11,00
4	Feb-16	21	18,81	2,19	2,17	2,17	0,91	10,42
5	Mar-16	23	20,80	2,20	2,19	2,19	1,00	9,55
6	Apr-16	25	23,00	2,00	2,02	2,02	1,00	8,00
7	Mei-16	28	25,00	3,00	2,91	2,91	1,00	10,71
8	Jun-16	32	28,00	4,00	3,90	3,90	1,00	12,50
9	Jul-16	34	32,00	2,00	2,17	2,17	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,44	3,84	1,00	13,33

11	Sep-16	32	30,00	2,00	1,51	2,17	0,90	6,25
12	Okt-16	37	31,80	5,20	4,87	4,93	0,70	14,06
13	Nov-16		35,43					

2.9.2. $\beta = 0,92$ menghasilkan nilai MAPE = 9,75

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,92	0,92	0,92	5,88
3	Jan-16	19	16,92	2,08	1,99	1,99	0,92	10,95
4	Feb-16	21	18,83	2,17	2,15	2,15	0,92	10,32
5	Mar-16	23	20,83	2,17	2,17	2,17	1,00	9,45
6	Apr-16	25	23,00	2,00	2,01	2,01	1,00	8,00
7	Mei-16	28	25,00	3,00	2,92	2,92	1,00	10,71
8	Jun-16	32	28,00	4,00	3,91	3,91	1,00	12,50
9	Jul-16	34	32,00	2,00	2,15	2,15	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,51	3,85	1,00	13,33
11	Sep-16	32	30,00	2,00	1,56	2,15	0,91	6,25
12	Okt-16	37	31,82	5,18	4,89	4,94	0,73	14,00
13	Nov-16		35,58					

2.9.3. $\beta = 0,93$ menghasilkan nilai MAPE = 9,72

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,93	0,93	0,93	5,88
3	Jan-16	19	16,93	2,07	1,99	1,99	0,93	10,89
4	Feb-16	21	18,86	2,14	2,13	2,13	0,93	10,21
5	Mar-16	23	20,85	2,15	2,15	2,15	1,00	9,35
6	Apr-16	25	23,00	2,00	2,01	2,01	1,00	8,00
7	Mei-16	28	25,00	3,00	2,93	2,93	1,00	10,71
8	Jun-16	32	28,00	4,00	3,93	3,93	1,00	12,50
9	Jul-16	34	32,00	2,00	2,13	2,13	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,57	3,87	1,00	13,33
11	Sep-16	32	30,00	2,00	1,61	2,13	0,92	6,25
12	Okt-16	37	31,85	5,15	4,91	4,94	0,76	13,93
13	Nov-16		35,74					

2.9.4. $\beta = 0,94$ menghasilkan nilai MAPE = 9,69

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,94	0,94	0,94	5,88

3	Jan-16	19	16,94	2,06	1,99	1,99	0,94	10,84
4	Feb-16	21	18,88	2,12	2,12	2,12	0,94	10,11
5	Mar-16	23	20,87	2,13	2,13	2,13	1,00	9,25
6	Apr-16	25	23,00	2,00	2,01	2,01	1,00	8,00
7	Mei-16	28	25,00	3,00	2,94	2,94	1,00	10,71
8	Jun-16	32	28,00	4,00	3,94	3,94	1,00	12,50
9	Jul-16	34	32,00	2,00	2,12	2,12	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,63	3,89	1,00	13,33
11	Sep-16	32	30,00	2,00	1,66	2,11	0,93	6,25
12	Okt-16	37	31,87	5,13	4,92	4,95	0,79	13,87
13	Nov-16		35,90					

2.9.5. $\beta = 0,95$ menghasilkan nilai MAPE = 9,67

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,95	0,95	0,95	5,88
3	Jan-16	19	16,95	2,05	2,00	2,00	0,95	10,79
4	Feb-16	21	18,90	2,10	2,10	2,10	0,95	10,01
5	Mar-16	23	20,89	2,11	2,10	2,10	1,00	9,15
6	Apr-16	25	23,00	2,00	2,01	2,01	1,00	8,00
7	Mei-16	28	25,00	3,00	2,95	2,95	1,00	10,71
8	Jun-16	32	28,00	4,00	3,95	3,95	1,00	12,50
9	Jul-16	34	32,00	2,00	2,10	2,10	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,70	3,90	1,00	13,33
11	Sep-16	32	30,00	2,00	1,72	2,10	0,95	6,25
12	Okt-16	37	31,89	5,11	4,94	4,96	0,82	13,80
13	Nov-16		36,07					

2.9.6. $\beta = 0,96$ menghasilkan nilai MAPE = 9,64

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,96	0,96	0,96	5,88
3	Jan-16	19	16,96	2,04	2,00	2,00	0,96	10,74
4	Feb-16	21	18,92	2,08	2,08	2,08	0,96	9,91
5	Mar-16	23	20,92	2,08	2,08	2,08	1,00	9,06
6	Apr-16	25	23,00	2,00	2,00	2,00	1,00	8,00
7	Mei-16	28	25,00	3,00	2,96	2,96	1,00	10,71
8	Jun-16	32	28,00	4,00	3,96	3,96	1,00	12,50
9	Jul-16	34	32,00	2,00	2,08	2,08	1,00	5,88

10	Agu-16	30	34,00	-4,00	-3,76	3,92	1,00	13,33
11	Sep-16	32	30,00	2,00	1,77	2,08	0,96	6,25
12	Okt-16	37	31,92	5,08	4,95	4,96	0,85	13,74
13	Nov-16		36,25					

2.9.7. $\beta = 0,97$ menghasilkan nilai MAPE = 9,61

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,97	0,97	0,97	5,88
3	Jan-16	19	16,97	2,03	2,00	2,00	0,97	10,68
4	Feb-16	21	18,94	2,06	2,06	2,06	0,97	9,81
5	Mar-16	23	20,94	2,06	2,06	2,06	1,00	8,96
6	Apr-16	25	23,00	2,00	2,00	2,00	1,00	8,00
7	Mei-16	28	25,00	3,00	2,97	2,97	1,00	10,71
8	Jun-16	32	28,00	4,00	3,97	3,97	1,00	12,50
9	Jul-16	34	32,00	2,00	2,06	2,06	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,82	3,94	1,00	13,33
11	Sep-16	32	30,00	2,00	1,83	2,06	0,97	6,25
12	Okt-16	37	31,94	5,06	4,97	4,97	0,89	13,68
13	Nov-16		36,43					

2.9.8. $\beta = 0,98$ menghasilkan nilai MAPE = 9,58

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0
2	Des-15	17	16,00	1,00	0,98	0,98	0,98	5,88
3	Jan-16	19	16,98	2,02	2,00	2,00	0,98	10,63
4	Feb-16	21	18,96	2,04	2,04	2,04	0,98	9,72
5	Mar-16	23	20,96	2,04	2,04	2,04	1,00	8,87
6	Apr-16	25	23,00	2,00	2,00	2,00	1,00	8,00
7	Mei-16	28	25,00	3,00	2,98	2,98	1,00	10,71
8	Jun-16	32	28,00	4,00	3,98	3,98	1,00	12,50
9	Jul-16	34	32,00	2,00	2,04	2,04	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,88	3,96	1,00	13,33
11	Sep-16	32	30,00	2,00	1,88	2,04	0,98	6,25
12	Okt-16	37	31,96	5,04	4,98	4,98	0,92	13,62
13	Nov-16		36,61					

2.9.9. $\beta = 0,99$ menghasilkan nilai MAPE = 9,56

t	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	16	0	0	0	0	0	0

2	Des-15	17	16,00	1,00	0,99	0,99	0,99	5,88
3	Jan-16	19	16,99	2,01	2,00	2,00	0,99	10,58
4	Feb-16	21	18,98	2,02	2,02	2,02	0,99	9,62
5	Mar-16	23	20,98	2,02	2,02	2,02	1,00	8,78
6	Apr-16	25	23,00	2,00	2,00	2,00	1,00	8,00
7	Mei-16	28	25,00	3,00	2,99	2,99	1,00	10,71
8	Jun-16	32	28,00	4,00	3,99	3,99	1,00	12,50
9	Jul-16	34	32,00	2,00	2,02	2,02	1,00	5,88
10	Agu-16	30	34,00	-4,00	-3,94	3,98	1,00	13,33
11	Sep-16	32	30,00	2,00	1,94	2,02	0,99	6,25
12	Okt-16	37	31,98	5,02	4,99	4,99	0,96	13,57
13	Nov-16		36,80					

3. Data Hasil Peramalan Penjualan Produk NCS Plan B

3.1. $\beta = 0,1$ menghasilkan nilai MAPE = 10,10

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	1,10	1,10	0,10	10,78
3	Jan-16	95	92,10	2,90	1,28	1,28	0,10	3,05
4	Feb-16	116	92,39	23,61	3,51	3,51	0,10	20,35
5	Mar-16	109	94,75	14,25	4,59	4,59	1,00	13,07
6	Apr-16	146	109,00	37,00	7,83	7,83	1,00	25,34
7	Mei-16	123	146,00	-23,00	4,75	9,35	1,00	18,70
8	Jun-16	126	123,00	3,00	4,57	8,71	0,51	2,38
9	Jul-16	128	124,52	3,48	4,46	8,19	0,52	2,72
10	Agu-16	133	126,35	6,65	4,68	8,03	0,54	5,00
11	Sep-16	141	129,97	11,03	5,32	8,33	0,58	7,82
12	Okt-16	139	136,40	2,60	5,04	7,76	0,64	1,87
13	Nov-16		138,06					

3.2. $\beta = 0,2$ menghasilkan nilai MAPE = 9,81

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	2,20	2,20	0,20	10,78
3	Jan-16	95	93,20	1,80	2,12	2,12	0,20	1,89
4	Feb-16	116	93,56	22,44	6,18	6,18	0,20	19,34
5	Mar-16	109	98,05	10,95	7,14	7,14	1,00	10,05
6	Apr-16	146	109,00	37,00	13,11	13,11	1,00	25,34
7	Mei-16	123	146,00	-23,00	5,89	15,09	1,00	18,70

8	Jun-16	126	123,00	3,00	5,31	12,67	0,39	2,38
9	Jul-16	128	124,17	3,83	5,01	10,90	0,42	2,99
10	Agu-16	133	125,78	7,22	5,46	10,17	0,46	5,43
11	Sep-16	141	129,10	11,90	6,75	10,51	0,54	8,44
12	Okt-16	139	135,49	3,51	6,10	9,11	0,64	2,53
13	Nov-16		137,74					

3.3. $\beta = 0,3$ menghasilkan nilai MAPE = 9,55

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	3,30	3,30	0,30	10,78
3	Jan-16	95	94,30	0,70	2,52	2,52	0,30	0,74
4	Feb-16	116	94,51	21,49	8,21	8,21	0,30	18,53
5	Mar-16	109	100,96	8,04	8,16	8,16	1,00	7,38
6	Apr-16	146	109,00	37,00	16,81	16,81	1,00	25,34
7	Mei-16	123	146,00	-23,00	4,87	18,67	1,00	18,70
8	Jun-16	126	123,00	3,00	4,31	13,97	0,26	2,38
9	Jul-16	128	123,78	4,22	4,28	11,04	0,31	3,30
10	Agu-16	133	125,08	7,92	5,37	10,11	0,39	5,95
11	Sep-16	141	128,15	12,85	7,61	10,93	0,53	9,11
12	Okt-16	139	134,98	4,02	6,54	8,85	0,70	2,89
13	Nov-16		137,78					

3.4. $\beta = 0,4$ menghasilkan nilai MAPE = 9,30

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	4,40	4,40	0,40	10,78
3	Jan-16	95	95,40	-0,40	2,48	2,80	0,40	0,42
4	Feb-16	116	95,24	20,76	9,79	9,98	0,40	17,90
5	Mar-16	109	103,54	5,46	8,06	8,17	0,98	5,01
6	Apr-16	146	108,90	37,10	19,68	19,75	0,99	25,41
7	Mei-16	123	145,48	-22,48	2,82	20,84	1,00	18,27
8	Jun-16	126	123,08	2,92	2,86	13,67	0,14	2,32
9	Jul-16	128	123,47	4,53	3,53	10,01	0,21	3,54
10	Agu-16	133	124,42	8,58	5,55	9,44	0,35	6,45
11	Sep-16	141	127,44	13,56	8,75	11,09	0,59	9,62
12	Okt-16	139	135,41	3,59	6,69	8,09	0,79	2,58
13	Nov-16		138,24					

3.5. $\beta = 0,5$ menghasilkan nilai MAPE = 9,03

T	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	5,50	5,50	0,50	10,78
3	Jan-16	95	96,50	-1,50	2,00	3,50	0,50	1,58
4	Feb-16	116	95,75	20,25	11,13	11,88	0,50	17,46
5	Mar-16	109	105,88	3,13	7,13	7,50	0,94	2,87
6	Apr-16	146	108,80	37,20	22,16	22,35	0,95	25,48
7	Mei-16	123	144,14	-21,14	0,51	21,74	0,99	17,19
8	Jun-16	126	123,18	2,82	1,67	12,28	0,02	2,24
9	Jul-16	128	123,24	4,76	3,21	8,52	0,14	3,72
10	Agu-16	133	123,89	9,11	6,16	8,82	0,38	6,85
11	Sep-16	141	127,32	13,68	9,92	11,25	0,70	9,70
12	Okt-16	139	136,88	2,12	6,02	6,68	0,88	1,52
13	Nov-16		138,75					

3.6. $\beta = 0,6$ menghasilkan nilai MAPE = 8,69

T	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	6,60	6,60	0,60	10,78
3	Jan-16	95	97,60	-2,60	1,08	4,20	0,60	2,74
4	Feb-16	116	96,04	19,96	12,41	13,66	0,60	17,21
5	Mar-16	109	108,02	0,98	5,55	6,05	0,91	0,90
6	Apr-16	146	108,91	37,09	24,48	24,68	0,92	25,40
7	Mei-16	123	142,94	-19,94	-2,17	21,83	0,99	16,21
8	Jun-16	126	123,16	2,84	0,83	10,44	0,10	2,25
9	Jul-16	128	123,44	4,56	3,07	6,91	0,08	3,56
10	Agu-16	133	123,81	9,19	6,74	8,28	0,44	6,91
11	Sep-16	141	127,89	13,11	10,56	11,18	0,81	9,30
12	Okt-16	139	138,57	0,43	4,49	4,73	0,95	0,31
13	Nov-16		138,98					

3.7. $\beta = 0,7$ menghasilkan nilai MAPE = 7,81

T	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	7,70	7,70	0,70	10,78
3	Jan-16	95	98,70	-3,70	-0,28	4,90	0,70	3,89
4	Feb-16	116	96,11	19,89	13,84	15,39	0,70	17,15
5	Mar-16	109	110,03	-1,03	3,43	5,34	0,90	0,95

6	Apr-16	146	109,10	36,90	26,86	27,43	0,64	25,27
7	Mei-16	123	132,79	-9,79	1,20	15,08	0,98	7,96
8	Jun-16	126	123,20	2,80	2,32	6,48	0,08	2,22
9	Jul-16	128	123,43	4,57	3,90	5,14	0,36	3,57
10	Agu-16	133	125,06	7,94	6,72	7,10	0,76	5,97
11	Sep-16	141	131,07	9,93	8,97	9,08	0,95	7,04
12	Okt-16	139	140,48	-1,48	1,66	3,76	0,99	1,06
13	Nov-16		139,02					

3.7.1. $\beta = 0,71$ menghasilkan nilai MAPE = 7,63

T	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	7,81	7,81	0,71	10,78
3	Jan-16	95	98,81	-3,81	-0,44	4,97	0,71	4,01
4	Feb-16	116	96,10	19,90	14,00	15,57	0,71	17,15
5	Mar-16	109	110,23	-1,23	3,19	5,39	0,90	1,13
6	Apr-16	146	109,12	36,88	27,11	27,74	0,59	25,26
7	Mei-16	123	130,93	-7,93	2,23	13,67	0,98	6,45
8	Jun-16	126	123,18	2,82	2,65	5,97	0,16	2,24
9	Jul-16	128	123,64	4,36	3,86	4,82	0,44	3,40
10	Agu-16	133	125,58	7,42	6,39	6,67	0,80	5,58
11	Sep-16	141	131,52	9,48	8,58	8,67	0,96	6,72
12	Okt-16	139	140,60	-1,60	1,35	3,65	0,99	1,15
13	Nov-16		139,01					

3.7.2. $\beta = 0,72$ menghasilkan nilai MAPE = 7,44

T	Bulan	Y	F	E	A	M	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	7,92	7,92	0,72	10,78
3	Jan-16	95	98,92	-3,92	-0,60	5,04	0,72	4,13
4	Feb-16	116	96,10	19,90	14,16	15,74	0,72	17,16
5	Mar-16	109	110,43	-1,43	2,94	5,44	0,90	1,31
6	Apr-16	146	109,14	36,86	27,36	28,06	0,54	25,24
7	Mei-16	123	129,06	-6,06	3,30	12,22	0,98	4,93
8	Jun-16	126	123,15	2,85	2,97	5,47	0,27	2,26
9	Jul-16	128	123,92	4,08	3,77	4,47	0,54	3,19
10	Agu-16	133	126,14	6,86	6,00	6,19	0,84	5,16
11	Sep-16	141	131,93	9,07	8,21	8,27	0,97	6,44
12	Okt-16	139	140,71	-1,71	1,07	3,55	0,99	1,23

13	Nov-16		139,01					
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3.7.3. $\beta = 0,73$ menghasilkan nilai MAPE = 7,24

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,03	8,03	0,73	10,78
3	Jan-16	95	99,03	-4,03	-0,77	5,11	0,73	4,24
4	Feb-16	116	96,09	19,91	14,33	15,92	0,73	17,17
5	Mar-16	109	110,62	-1,62	2,68	5,48	0,90	1,49
6	Apr-16	146	109,16	36,84	27,62	28,37	0,49	25,23
7	Mei-16	123	127,19	-4,19	4,40	10,72	0,97	3,41
8	Jun-16	126	123,11	2,89	3,30	5,00	0,41	2,29
9	Jul-16	128	124,30	3,70	3,59	4,05	0,66	2,89
10	Agu-16	133	126,74	6,26	5,54	5,67	0,89	4,71
11	Sep-16	141	132,29	8,71	7,86	7,89	0,98	6,18
12	Okt-16	139	140,81	-1,81	0,80	3,45	1,00	1,30
13	Nov-16		139,01					

3.7.4. $\beta = 0,74$ menghasilkan nilai MAPE = 7,04

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,14	8,14	0,74	10,78
3	Jan-16	95	99,14	-4,14	-0,95	5,18	0,74	4,36
4	Feb-16	116	96,08	19,92	14,50	16,09	0,74	17,18
5	Mar-16	109	110,82	-1,82	2,42	5,53	0,90	1,67
6	Apr-16	146	109,18	36,82	27,88	28,68	0,44	25,22
7	Mei-16	123	125,31	-2,31	5,54	9,17	0,97	1,88
8	Jun-16	126	123,07	2,93	3,61	4,56	0,60	2,33
9	Jul-16	128	124,84	3,16	3,28	3,52	0,79	2,47
10	Agu-16	133	127,35	5,65	5,04	5,10	0,93	4,25
11	Sep-16	141	132,61	8,39	7,52	7,54	0,99	5,95
12	Okt-16	139	140,90	-1,90	0,55	3,36	1,00	1,36
13	Nov-16		139,00					

3.7.5. $\beta = 0,75$ menghasilkan nilai MAPE = 6,82

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,25	8,25	0,75	10,78
3	Jan-16	95	99,25	-4,25	-1,13	5,25	0,75	4,47
4	Feb-16	116	96,06	19,94	14,67	16,27	0,75	17,19

5	Mar-16	109	111,02	-2,02	2,16	5,58	0,90	1,85
6	Apr-16	146	109,20	36,80	28,14	29,00	0,39	25,21
7	Mei-16	123	123,42	-0,42	6,72	7,57	0,97	0,34
8	Jun-16	126	123,01	2,99	3,92	4,13	0,89	2,37
9	Jul-16	128	125,66	2,34	2,73	2,78	0,95	1,82
10	Agu-16	133	127,88	5,12	4,52	4,54	0,98	3,85
11	Sep-16	141	132,90	8,10	7,20	7,21	1,00	5,74
12	Okt-16	139	140,98	-1,98	0,32	3,28	1,00	1,42
13	Nov-16		139,00					

3.7.6. $\beta = 0,76$ menghasilkan nilai MAPE = 6,90

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,36	8,36	0,76	10,78
3	Jan-16	95	99,36	-4,36	-1,31	5,32	0,76	4,59
4	Feb-16	116	96,05	19,95	14,85	16,44	0,76	17,20
5	Mar-16	109	111,21	-2,21	1,88	5,63	0,90	2,03
6	Apr-16	146	109,21	36,79	28,41	29,31	0,33	25,20
7	Mei-16	123	121,53	1,47	7,94	8,15	0,97	1,19
8	Jun-16	126	122,95	3,05	4,22	4,27	0,97	2,42
9	Jul-16	128	125,92	2,08	2,59	2,61	0,99	1,63
10	Agu-16	133	127,97	5,03	4,44	4,44	1,00	3,78
11	Sep-16	141	132,98	8,02	7,16	7,16	1,00	5,69
12	Okt-16	139	140,99	-1,99	0,20	3,24	1,00	1,43
13	Nov-16		139,00					

3.7.7. $\beta = 0,77$ menghasilkan nilai MAPE = 7,08

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,47	8,47	0,77	10,78
3	Jan-16	95	99,47	-4,47	-1,49	5,39	0,77	4,71
4	Feb-16	116	96,03	19,97	15,03	16,62	0,77	17,22
5	Mar-16	109	111,41	-2,41	1,61	5,68	0,90	2,21
6	Apr-16	146	109,23	36,77	28,68	29,62	0,28	25,19
7	Mei-16	123	119,63	3,37	9,19	9,41	0,97	2,74
8	Jun-16	126	122,89	3,11	4,51	4,56	0,98	2,47
9	Jul-16	128	125,93	2,07	2,63	2,64	0,99	1,62
10	Agu-16	133	127,98	5,02	4,47	4,48	1,00	3,78
11	Sep-16	141	132,98	8,02	7,21	7,21	1,00	5,69

12	Okt-16	139	141,00	-2,00	0,12	3,19	1,00	1,44
13	Nov-16		139,00					

3.7.8. $\beta = 0,78$ menghasilkan nilai MAPE = 7,25

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,58	8,58	0,78	10,78
3	Jan-16	95	99,58	-4,58	-1,68	5,46	0,78	4,82
4	Feb-16	116	96,01	19,99	15,22	16,80	0,78	17,23
5	Mar-16	109	111,60	-2,60	1,32	5,72	0,91	2,39
6	Apr-16	146	109,24	36,76	28,96	29,93	0,23	25,18
7	Mei-16	123	117,72	5,28	10,49	10,70	0,97	4,29
8	Jun-16	126	122,83	3,17	4,78	4,83	0,98	2,52
9	Jul-16	128	125,94	2,06	2,66	2,67	0,99	1,61
10	Agu-16	133	127,98	5,02	4,50	4,50	1,00	3,77
11	Sep-16	141	132,98	8,02	7,25	7,25	1,00	5,69
12	Okt-16	139	141,00	-2,00	0,04	3,15	1,00	1,44
13	Nov-16		139,00					

3.7.9. $\beta = 0,79$ menghasilkan nilai MAPE = 7,42

<i>t</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,69	8,69	0,79	10,78
3	Jan-16	95	99,69	-4,69	-1,88	5,53	0,79	4,94
4	Feb-16	116	95,98	20,02	15,42	16,97	0,79	17,25
5	Mar-16	109	111,80	-2,80	1,03	5,77	0,91	2,57
6	Apr-16	146	109,26	36,74	29,24	30,24	0,18	25,17
7	Mei-16	123	115,80	7,20	11,83	12,04	0,97	5,85
8	Jun-16	126	122,76	3,24	5,04	5,09	0,98	2,57
9	Jul-16	128	125,94	2,06	2,68	2,69	0,99	1,61
10	Agu-16	133	127,98	5,02	4,53	4,53	1,00	3,77
11	Sep-16	141	132,98	8,02	7,28	7,28	1,00	5,69
12	Okt-16	139	141,00	-2,00	-0,05	3,11	1,00	1,44
13	Nov-16		139,00					

3.8. $\beta = 0,8$ menghasilkan nilai MAPE = 7,60

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	8,80	8,80	0,80	10,78
3	Jan-16	95	99,80	-4,80	-2,08	5,60	0,80	5,05

4	Feb-16	116	95,96	20,04	15,62	17,15	0,80	17,28
5	Mar-16	109	111,99	-2,99	0,73	5,82	0,91	2,74
6	Apr-16	146	109,27	36,73	29,53	30,55	0,13	25,16
7	Mei-16	123	113,87	9,13	13,21	13,41	0,97	7,42
8	Jun-16	126	122,70	3,30	5,29	5,33	0,98	2,62
9	Jul-16	128	125,95	2,05	2,70	2,71	0,99	1,60
10	Agu-16	133	127,98	5,02	4,55	4,55	1,00	3,77
11	Sep-16	141	132,98	8,02	7,32	7,32	1,00	5,68
12	Okt-16	139	141,00	-2,00	-0,13	3,06	1,00	1,44
13	Nov-16		139,00					

3.9. $\beta = 0,9$ menghasilkan nilai MAPE = 7,48

<i>T</i>	Bulan	<i>Y</i>	<i>F</i>	<i>E</i>	<i>A</i>	<i>M</i>	α	PE
1	Nov-15	91	0	0	0	0	0	0
2	Des-15	102	91,00	11,00	9,90	9,90	0,90	10,78
3	Jan-16	95	100,90	-5,90	-4,32	6,30	0,90	6,21
4	Feb-16	116	95,59	20,41	17,94	19,00	0,90	17,59
5	Mar-16	109	113,96	-4,96	-2,67	6,36	0,94	4,55
6	Apr-16	146	109,28	36,72	32,78	33,69	0,42	25,15
7	Mei-16	123	124,68	-1,68	1,76	4,88	0,97	1,37
8	Jun-16	126	123,05	2,95	2,84	3,15	0,36	2,35
9	Jul-16	128	124,11	3,89	3,78	3,81	0,90	3,04
10	Agu-16	133	127,61	5,39	5,23	5,23	0,99	4,05
11	Sep-16	141	132,96	8,04	7,76	7,76	1,00	5,71
12	Okt-16	139	141,00	-2,00	-1,02	2,57	1,00	1,44
13	Nov-16		139,00					

Lampiran C. Perhitungan Peramalan Secara Manual Pada *Training Data*

- Perhitungan peramalan secara manual pada produk NBS

Periode ke 1:

..... $Y_1 = 571$

..... $\alpha_1 = 0$

..... $F_1 = 0$

..... $E_1 = 0$

(Inisialisasi)..... $A_1 = 0$

(Inisialisasi)..... $M_1 = 0$

..... $PE_1 = 0$

Periode ke 2:

$$\dots\dots\dots Y_2 = 588$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_2 = 0,08$$

$$\text{(Inisialisasi)} \dots\dots\dots F_2 = 571,00$$

$$E_2 = Y_2 - F_2 \dots\dots\dots$$

$$E_2 = 588 - 571,00 \dots\dots\dots$$

$$\dots\dots\dots E_2 = 17,00$$

$$A_2 = \beta E_2 + (1 - \beta)A_{2-1} \dots\dots\dots$$

$$A_2 = 0,08 \times 17,00 + (1 - 0,08) \times 0 \dots\dots\dots$$

$$\dots\dots\dots A_2 = 1,36$$

$$M_2 = \beta |E_2| + (1 - \beta)M_{2-1} \dots\dots\dots$$

$$M_2 = 0,08 \times |17,00| + (1 - 0,08) \times 0 \dots\dots\dots$$

$$\dots\dots\dots M_2 = 1,36$$

$$PE_2 = \left| \frac{Y_2 - F_2}{Y_2} \right| \times 100 \dots\dots\dots$$

$$PE_2 = \left| \frac{588 - 571,00}{588} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_2 = 2,89$$

Periode ke 3:

$$\dots\dots\dots Y_3 = 595$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_3 = 0,08$$

$$F_{2+1} = \alpha_2 Y_2 + (1 - \alpha_2) F_2 \dots\dots\dots$$

$$F_3 = 0,08 \times 588 + (1 - 0,08) \times 571,00 \dots\dots\dots$$

$$\dots\dots\dots F_3 = 572,36$$

$$E_3 = Y_3 - F_3 \dots\dots\dots$$

$$E_3 = 595 - 572,36 \dots\dots\dots$$

$$\dots\dots\dots E_3 = 22,64$$

$$A_3 = \beta E_3 + (1 - \beta)A_{3-1} \dots\dots\dots$$

$$A_3 = 0,08 \times 22,64 + (1 - 0,08) \times 1,36 \dots\dots\dots$$

$$\dots\dots\dots A_3 = 3,06$$

$$M_3 = \beta |E_3| + (1 - \beta)M_{3-1} \dots\dots\dots$$

$$M_3 = 0,08 \times |22,64| + (1 - 0,08) \times 1,36 \dots\dots\dots$$

$$\dots\dots\dots M_3 = 3,06$$

$$PE_3 = \left| \frac{Y_3 - F_3}{Y_3} \right| \times 100 \dots\dots\dots$$

$$PE_3 = \left| \frac{595 - 572,36}{595} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_3 = 3,81$$

Periode ke 4:

$$\dots\dots\dots Y_4 = 574$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_4 = 0,08$$

$$F_{3+1} = \alpha_3 Y_3 + (1 - \alpha_3) F_3 \dots\dots\dots$$

$$F_4 = 0,08 \times 595 + (1 - 0,08) \times 572,36 \dots\dots\dots$$

$$\dots\dots\dots F_4 = 574,17$$

$$E_4 = Y_4 - F_4 \dots\dots\dots$$

$$E_4 = 574 - 574,17 \dots\dots\dots$$

$$\dots\dots\dots E_4 = -0,17$$

$$A_4 = \beta E_4 + (1 - \beta) A_{4-1} \dots\dots\dots$$

$$A_4 = 0,08 \times (-0,17) + (1 - 0,08) \times 3,06 \dots\dots\dots$$

$$\dots\dots\dots A_4 = 2,80$$

$$M_4 = \beta |E_4| + (1 - \beta) M_{4-1} \dots\dots\dots$$

$$M_4 = 0,08 \times |-0,17| + (1 - 0,08) \times 3,06 \dots\dots\dots$$

$$\dots\dots\dots M_4 = 2,83$$

$$PE_4 = \left| \frac{Y_4 - F_4}{Y_4} \right| \times 100 \dots\dots\dots$$

$$PE_4 = \left| \frac{574 - 574,17}{574} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_4 = 0,03$$

Periode ke 5:

$$\dots\dots\dots Y_5 = 592$$

$$\alpha_{4+1} = \left| \frac{A_4}{M_4} \right| \dots\dots\dots$$

$$\alpha_5 = \left| \frac{2,80}{2,83} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_5 = 0,99$$

$$F_{4+1} = \alpha_4 Y_4 + (1 - \alpha_4) F_4 \dots\dots\dots$$

$$F_5 = 0,08 \times 574 + (1 - 0,08) \times 574,17 \dots\dots\dots$$

$$\dots\dots\dots F_5 = 574,16$$

$$E_5 = Y_5 - F_5 \dots\dots\dots$$

$$E_5 = 592 - 574,16 \dots\dots\dots$$

$$\dots\dots\dots E_5 = 17,84$$

$$A_5 = \beta E_5 + (1 - \beta)A_{5-1} \dots\dots\dots$$

$$A_5 = 0,08 \times 17,84 + (1 - 0,08) \times 2,80 \dots\dots\dots$$

$$\dots\dots\dots A_5 = 4,01$$

$$M_5 = \beta |E_5| + (1 - \beta)M_{5-1} \dots\dots\dots$$

$$M_5 = 0,08 \times |17,84| + (1 - 0,08) \times 2,83 \dots\dots\dots$$

$$\dots\dots\dots M_5 = 4,03$$

$$PE_5 = \left| \frac{Y_5 - F_5}{Y_5} \right| \times 100 \dots\dots\dots$$

$$PE_5 = \left| \frac{592 - 574,16}{592} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_5 = 3,01$$

Periode ke 6:

$$\dots\dots\dots Y_6 = 613$$

$$\alpha_{5+1} = \left| \frac{A_5}{M_5} \right| \dots\dots\dots$$

$$\alpha_6 = \left| \frac{4,01}{4,03} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_6 = 0,99$$

$$F_{5+1} = \alpha_5 Y_5 + (1 - \alpha_5) F_5 \dots\dots\dots$$

$$F_6 = 0,99 \times 592 + (1 - 0,99) \times 574,16 \dots\dots\dots$$

$$\dots\dots\dots F_6 = 591,83$$

$$E_6 = Y_6 - F_6 \dots\dots\dots$$

$$E_6 = 613 - 591,83 \dots\dots\dots$$

$$\dots\dots\dots E_6 = 21,17$$

$$A_6 = \beta E_6 + (1 - \beta)A_{6-1} \dots\dots\dots$$

$$A_6 = 0,08 \times 21,17 + (1 - 0,08) \times 4,01 \dots\dots\dots$$

$$\dots\dots\dots A_6 = 5,38$$

$$M_6 = \beta |E_6| + (1 - \beta)M_{6-1} \dots\dots\dots$$

$$M_6 = 0,08 \times |21,17| + (1 - 0,08) \times 4,03 \dots\dots\dots$$

$$\dots\dots\dots M_6 = 5,4$$

$$PE_6 = \left| \frac{Y_6 - F_6}{Y_6} \right| \times 100 \dots\dots\dots$$

$$PE_6 = \left| \frac{613 - 591,83}{613} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_6 = 3,45$$

Periode ke 7:

$$\dots\dots\dots Y_7 = 643$$

$$\alpha_{6+1} = \left| \frac{A_6}{M_6} \right| \dots\dots\dots$$

$$\alpha_7 = \left| \frac{5,38}{5,4} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_7 = 1,00$$

$$F_{6+1} = \alpha_6 Y_6 + (1 - \alpha_6) F_6 \dots\dots\dots$$

$$F_7 = 0,99 \times 613 + (1 - 0,99) \times 591,83 \dots\dots\dots$$

$$\dots\dots\dots F_7 = 612,87$$

$$E_7 = Y_7 - F_7 \dots\dots\dots$$

$$E_7 = 643 - 612,87 \dots\dots\dots$$

$$\dots\dots\dots E_7 = 30,13$$

$$A_7 = \beta E_7 + (1 - \beta) A_{7-1} \dots\dots\dots$$

$$A_7 = 0,08 \times 30,13 + (1 - 0,08) \times 5,38 \dots\dots\dots$$

$$\dots\dots\dots A_7 = 7,36$$

$$M_7 = \beta |E_7| + (1 - \beta) M_{7-1} \dots\dots\dots$$

$$M_7 = 0,08 \times |30,13| + (1 - 0,08) \times 5,4 \dots\dots\dots$$

$$\dots\dots\dots M_7 = 7,38$$

$$PE_7 = \left| \frac{Y_7 - F_7}{Y_7} \right| \times 100 \dots\dots\dots$$

$$PE_7 = \left| \frac{643 - 612,87}{643} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_7 = 4,69$$

Periode ke 8:

$$\dots\dots\dots Y_8 = 650$$

$$\alpha_{7+1} = \left| \frac{A_7}{M_7} \right| \dots\dots\dots$$

$$\alpha_8 = \left| \frac{7,36}{7,38} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_8 = 1,00$$

$$F_{7+1} = \alpha_7 Y_7 + (1 - \alpha_7) F_7 \dots\dots\dots$$

$$F_8 = 1,00 \times 643 + (1 - 1,00) \times 612,87 \dots\dots\dots$$

$$\dots\dots\dots F_8 = 642,87$$

$$E_8 = Y_8 - F_8 \dots\dots\dots$$

$$E_8 = 650 - 642,87 \dots\dots\dots$$

$$\dots\dots\dots E_8 = 7,13$$

$$A_8 = \beta E_8 + (1 - \beta) A_{8-1} \dots\dots\dots$$

$$A_8 = 0,08 \times 7,13 + (1 - 0,08) \times 7,36 \dots\dots\dots$$

$$\dots\dots\dots A_8 = 7,34$$

$$M_8 = \beta |E_8| + (1 - \beta) M_{8-1} \dots\dots\dots$$

$$M_8 = 0,08 \times |7,13| + (1 - 0,08) \times 7,38 \dots\dots\dots$$

$$\dots\dots\dots M_8 = 7,36$$

$$PE_8 = \left| \frac{Y_8 - F_8}{Y_8} \right| \times 100 \dots\dots\dots$$

$$PE_8 = \left| \frac{650 - 642,87}{650} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_8 = 1,1$$

Periode ke 9:

$$\dots\dots\dots Y_9 = 708$$

$$\alpha_{8+1} = \left| \frac{A_8}{M_8} \right| \dots\dots\dots$$

$$\alpha_9 = \left| \frac{7,34}{7,36} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_9 = 1,00$$

$$F_{8+1} = \alpha_8 Y_8 + (1 - \alpha_8) F_8 \dots\dots\dots$$

$$F_9 = 1,00 \times 650 + (1 - 1,00) \times 642,87 \dots\dots\dots$$

$$\dots\dots\dots F_9 = 649,98$$

$$E_9 = Y_9 - F_9 \dots\dots\dots$$

$$E_9 = 708 - 649,98 \dots\dots\dots$$

$$\dots\dots\dots E_9 = 58,02$$

$$A_9 = \beta E_9 + (1 - \beta)A_{9-1} \dots\dots\dots$$

$$A_9 = 0,08 \times 58,02 + (1 - 0,08) \times 7,34 \dots\dots\dots$$

$$\dots\dots\dots A_9 = 11,40$$

$$M_9 = \beta |E_9| + (1 - \beta)M_{9-1} \dots\dots\dots$$

$$M_9 = 0,08 \times |58,02| + (1 - 0,08) \times 7,36 \dots\dots\dots$$

$$\dots\dots\dots M_9 = 11,41$$

$$PE_9 = \left| \frac{Y_9 - F_9}{Y_9} \right| \times 100 \dots\dots\dots$$

$$PE_9 = \left| \frac{708 - 649,98}{708} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_9 = 8,20$$

Periode ke 10:

$$\dots\dots\dots Y_{10} = 695$$

$$\alpha_{9+1} = \left| \frac{A_9}{M_9} \right| \dots\dots\dots$$

$$\alpha_{10} = \left| \frac{11,40}{11,41} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{10} = 1,00$$

$$F_{9+1} = \alpha_9 Y_9 + (1 - \alpha_9) F_9 \dots\dots\dots$$

$$F_{10} = 1,00 \times 708 + (1 - 1,00) \times 649,98 \dots\dots\dots$$

$$\dots\dots\dots F_{10} = 707,85$$

$$E_{10} = Y_{10} - F_{10} \dots\dots\dots$$

$$E_{10} = 695 - 707,85 \dots\dots\dots$$

$$\dots\dots\dots E_{10} = -12,85$$

$$A_{10} = \beta E_{10} + (1 - \beta)A_{10-1} \dots\dots\dots$$

$$A_{10} = 0,08 \times (-12,85) + (1 - 0,08) \times 11,40 \dots\dots\dots$$

$$\dots\dots\dots A_{10} = 9,46$$

$$M_{10} = \beta |E_{10}| + (1 - \beta)M_{10-1} \dots\dots\dots$$

$$M_{10} = 0,08 \times |-12,85| + (1 - 0,08) \times 11,41 \dots\dots\dots$$

$$\dots\dots\dots M_{10} = 11,53$$

$$PE_{10} = \left| \frac{Y_{10} - F_{10}}{Y_{10}} \right| \times 100 \dots\dots\dots$$

$$PE_{10} = \left| \frac{695 - 707,85}{695} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_{10} = 1,85$$

Periode ke 11:

$$\dots\dots\dots Y_{11} = 681$$

$$\alpha_{10+1} = \left| \frac{A_{10}}{M_{10}} \right| \dots\dots\dots$$

$$\alpha_{11} = \left| \frac{9,46}{11,53} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{11} = 0,82$$

$$F_{10+1} = \alpha_{10}Y_{10} + (1 - \alpha_{10})F_{10} \dots\dots\dots$$

$$F_{11} = 1,00 \times 695 + (1 - 1,00) \times 707,85 \dots\dots\dots$$

$$\dots\dots\dots F_{11} = 695,02$$

$$E_{11} = Y_{11} - F_{11} \dots\dots\dots$$

$$E_{11} = 681 - 695,02 \dots\dots\dots$$

$$\dots\dots\dots E_{11} = -14,02$$

$$A_{11} = \beta E_{11} + (1 - \beta)A_{11-1} \dots\dots\dots$$

$$A_{11} = 0,08 \times (-14,02) + (1 - 0,08) \times 9,46 \dots\dots\dots$$

$$\dots\dots\dots A_{11} = 7,58$$

$$M_{11} = \beta |E_{11}| + (1 - \beta)M_{11-1} \dots\dots\dots$$

$$M_{11} = 0,08 \times |-14,02| + (1 - 0,08) \times 11,53 \dots\dots\dots$$

$$\dots\dots\dots M_{11} = 11,73$$

$$PE_{11} = \left| \frac{Y_{11} - F_{11}}{Y_{11}} \right| \times 110 \dots\dots\dots$$

$$PE_{11} = \left| \frac{681 - 695,02}{681} \right| \times 110 \dots\dots\dots$$

$$\dots\dots\dots PE_{11} = 2,06$$

Periode ke 12:

$$\dots\dots\dots Y_{12} = 690$$

$$\alpha_{11+1} = \left| \frac{A_{11}}{M_{11}} \right| \dots\dots\dots$$

$$\alpha_{12} = \left| \frac{7,58}{11,73} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{12} = 0,65$$

$$F_{11+1} = \alpha_{11}Y_{11} + (1 - \alpha_{11})F_{11} \dots\dots\dots$$

$$F_{12} = 0,82 \times 681 + (1 - 0,82) \times 695,02 \dots\dots\dots$$

$$\dots\dots\dots F_{12} = 683,52$$

$$E_{12} = Y_{12} - F_{12} \dots\dots\dots$$

$$E_{12} = 690 - 683,52 \dots\dots\dots$$

$$\dots\dots\dots E_{12} = 6,48$$

$$A_{12} = \beta E_{12} + (1 - \beta)A_{12-1} \dots\dots\dots$$

$$A_{12} = 0,08 \times 6,48 + (1 - 0,08) \times 7,58 \dots\dots\dots$$

$$\dots\dots\dots A_{12} = 7,49$$

$$M_{12} = \beta |E_{12}| + (1 - \beta)M_{12-1} \dots\dots\dots$$

$$M_{12} = 0,08 \times |6,48| + (1 - 0,08) \times 11,73 \dots\dots\dots$$

$$\dots\dots\dots M_{12} = 11,31$$

$$PE_{12} = \left| \frac{Y_{12} - F_{12}}{Y_{12}} \right| \times 120 \dots\dots\dots$$

$$PE_{12} = \left| \frac{690 - 683,52}{690} \right| \times 120 \dots\dots\dots$$

$$\dots\dots\dots PE_{12} = 0,94$$

Periode selanjutnya atau periode ke 13 dan perhitungan MAPE:

$$F_{12+1} = \alpha_{12}Y_{12} + (1 - \alpha_{12})F_{12} \dots\dots\dots$$

$$F_{13} = 0,65 \times 690 + (1 - 0,65) \times 683,52 \dots\dots\dots$$

$$\dots\dots\dots F_{13} = 687,71$$

$$MAPE = \frac{\sum PE}{n} \dots\dots\dots$$

$$MAPE = \frac{2,89+3,81+0,03+3,01+3,45+4,69+1,10+8,20+1,85+2,06+0,94}{11} \dots\dots\dots$$

$$\dots\dots\dots MAPE = 2,91$$

2. Perhitungan peramalan secara manual pada produk NCS *Plan A*

Periode ke 1:

$$\dots\dots\dots Y_1 = 16$$

$$\dots\dots\dots \alpha_1 = 0$$

$$\dots\dots\dots F_1 = 0$$

$$\dots\dots\dots E_1 = 0$$

$$\text{(Inisialisasi)} \dots\dots\dots A_1 = 0$$

$$\text{(Inisialisasi)} \dots\dots\dots M_1 = 0$$

$$\dots\dots\dots PE_1 = 0$$

Periode ke 2:

$$\dots\dots\dots Y_2 = 17$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_2 = 0,99$$

$$\text{(Inisialisasi)} \dots\dots\dots F_2 = 16,00$$

$$E_2 = Y_2 - F_2 \dots\dots\dots$$

$$E_2 = 17 - 16,00 \dots\dots\dots$$

$$\dots\dots\dots E_2 = 1,00$$

$$A_2 = \beta E_2 + (1 - \beta)A_{2-1} \dots\dots\dots$$

$$A_2 = 0,99 \times 1,00 + (1 - 0,99) \times 0 \dots\dots\dots$$

$$\dots\dots\dots A_2 = 0,99$$

$$M_2 = \beta |E_2| + (1 - \beta)M_{2-1} \dots\dots\dots$$

$$M_2 = 0,99 \times |1,00| + (1 - 0,99) \times 0 \dots\dots\dots$$

$$\dots\dots\dots M_2 = 0,99$$

$$PE_2 = \left| \frac{Y_2 - F_2}{Y_2} \right| \times 100 \dots\dots\dots$$

$$PE_2 = \left| \frac{17 - 16,00}{17} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_2 = 5,88$$

Periode ke 3:

$$\dots\dots\dots Y_3 = 19$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_3 = 0,99$$

$$F_{2+1} = \alpha_2 Y_2 + (1 - \alpha_2) F_2 \dots\dots\dots$$

$$F_3 = 0,99 \times 17 + (1 - 0,99) \times 16,00 \dots\dots\dots$$

$$\dots\dots\dots F_3 = 16,99$$

$$E_3 = Y_3 - F_3 \dots\dots\dots$$

$$E_3 = 19 - 16,99 \dots\dots\dots$$

$$\dots\dots\dots E_3 = 2,01$$

$$A_3 = \beta E_3 + (1 - \beta)A_{3-1} \dots\dots\dots$$

$$A_3 = 0,99 \times 2,01 + (1 - 0,99) \times 0,99 \dots\dots\dots$$

$$\dots\dots\dots A_3 = 2,00$$

$$M_3 = \beta |E_3| + (1 - \beta)M_{3-1} \dots\dots\dots$$

$$M_3 = 0,99 \times |2,01| + (1 - 0,99) \times 0,99 \dots\dots\dots$$

$$\dots\dots\dots M_3 = 2,00$$

$$PE_3 = \left| \frac{Y_3 - F_3}{Y_3} \right| \times 100 \dots\dots\dots$$

$$PE_3 = \left| \frac{19 - 16,99}{19} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_3 = 10,58$$

Periode ke 4:

$$\dots\dots\dots Y_4 = 21$$

$$(Inisialisasi) \dots\dots\dots \alpha_4 = 0,99$$

$$F_{3+1} = \alpha_3 Y_3 + (1 - \alpha_3) F_3 \dots\dots\dots$$

$$F_4 = 0,99 \times 19 + (1 - 0,99) \times 16,99 \dots\dots\dots$$

$$\dots\dots\dots F_4 = 18,98$$

$$E_4 = Y_4 - F_4 \dots\dots\dots$$

$$E_4 = 21 - 18,98 \dots\dots\dots$$

$$\dots\dots\dots E_4 = 2,02$$

$$A_4 = \beta E_4 + (1 - \beta) A_{4-1} \dots\dots\dots$$

$$A_4 = 0,99 \times 2,02 + (1 - 0,99) \times 2 \dots\dots\dots$$

$$\dots\dots\dots A_4 = 2,02$$

$$M_4 = \beta |E_4| + (1 - \beta) M_{4-1} \dots\dots\dots$$

$$M_4 = 0,99 \times |2,02| + (1 - 0,99) \times 2 \dots\dots\dots$$

$$\dots\dots\dots M_4 = 2,02$$

$$PE_4 = \left| \frac{Y_4 - F_4}{Y_4} \right| \times 100 \dots\dots\dots$$

$$PE_4 = \left| \frac{21 - 18,98}{21} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_4 = 9,62$$

Periode ke 5:

$$\dots\dots\dots Y_5 = 23$$

$$\alpha_{4+1} = \left| \frac{A_4}{M_4} \right| \dots\dots\dots$$

$$\alpha_5 = \left| \frac{2,02}{2,02} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_5 = 1,00$$

$$F_{4+1} = \alpha_4 Y_4 + (1 - \alpha_4) F_4 \dots\dots\dots$$

$$F_5 = 0,99 \times 21 + (1 - 0,99) \times 18,98 \dots\dots\dots$$

$$\dots\dots\dots F_5 = 20,98$$

$$E_5 = Y_5 - F_5 \dots\dots\dots$$

$$E_5 = 23 - 20,98 \dots\dots\dots$$

$$\dots\dots\dots E_5 = 2,02$$

$$A_5 = \beta E_5 + (1 - \beta) A_{5-1} \dots\dots\dots$$

$$A_5 = 0,99 \times 2,02 + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots A_5 = 2,02$$

$$M_5 = \beta |E_5| + (1 - \beta) M_{5-1} \dots\dots\dots$$

$$M_5 = 0,99 \times |2,02| + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots M_5 = 2,02$$

$$PE_5 = \left| \frac{Y_5 - F_5}{Y_5} \right| \times 100 \dots\dots\dots$$

$$PE_5 = \left| \frac{23 - 20,98}{23} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_5 = 8,78$$

Periode ke 6:

$$\dots\dots\dots Y_6 = 25$$

$$\alpha_{5+1} = \left| \frac{A_5}{M_5} \right| \dots\dots\dots$$

$$\alpha_6 = \left| \frac{2,02}{2,02} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_6 = 1,00$$

$$F_{5+1} = \alpha_5 Y_5 + (1 - \alpha_5) F_5 \dots\dots\dots$$

$$F_6 = 1,00 \times 23 + (1 - 1,00) \times 20,98 \dots\dots\dots$$

$$\dots\dots\dots F_6 = 23,00$$

$$E_6 = Y_6 - F_6 \dots\dots\dots$$

$$E_6 = 25 - 23,00 \dots\dots\dots$$

$$\dots\dots\dots E_6 = 2,00$$

$$A_6 = \beta E_6 + (1 - \beta) A_{6-1} \dots\dots\dots$$

$$A_6 = 0,99 \times 2,00 + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots A_6 = 2,00$$

$$M_6 = \beta|E_6| + (1 - \beta)M_{6-1} \dots\dots\dots$$

$$M_6 = 0,99 \times |2,00| + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots M_6 = 2,00$$

$$PE_6 = \left| \frac{Y_6 - F_6}{Y_6} \right| \times 100 \dots\dots\dots$$

$$PE_6 = \left| \frac{25 - 23,00}{25} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_6 = 8,00$$

Periode ke 7:

$$\dots\dots\dots Y_7 = 28$$

$$\alpha_{6+1} = \left| \frac{A_6}{M_6} \right| \dots\dots\dots$$

$$\alpha_7 = \left| \frac{2,00}{2,00} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_7 = 1,00$$

$$F_{6+1} = \alpha_6 Y_6 + (1 - \alpha_6) F_6 \dots\dots\dots$$

$$F_7 = 1,00 \times 25 + (1 - 1,00) \times 23,00 \dots\dots\dots$$

$$\dots\dots\dots F_7 = 25,00$$

$$E_7 = Y_7 - F_7 \dots\dots\dots$$

$$E_7 = 28 - 25,00 \dots\dots\dots$$

$$\dots\dots\dots E_7 = 3,00$$

$$A_7 = \beta E_7 + (1 - \beta) A_{7-1} \dots\dots\dots$$

$$A_7 = 0,99 \times 3,00 + (1 - 0,99) \times 2,00 \dots\dots\dots$$

$$\dots\dots\dots A_7 = 2,99$$

$$M_7 = \beta|E_7| + (1 - \beta)M_{7-1} \dots\dots\dots$$

$$M_7 = 0,99 \times |3,00| + (1 - 0,99) \times 2,00 \dots\dots\dots$$

$$\dots\dots\dots M_7 = 2,99$$

$$PE_7 = \left| \frac{Y_7 - F_7}{Y_7} \right| \times 100 \dots\dots\dots$$

$$PE_7 = \left| \frac{28 - 25,00}{28} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_7 = 10,71$$

Periode ke 8:

$$\dots\dots\dots Y_8 = 32$$

$$\alpha_{7+1} = \left| \frac{A_7}{M_7} \right| \dots\dots\dots$$

$$\alpha_8 = \left| \frac{2,99}{2,99} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_8 = 1,00$$

$$F_{7+1} = \alpha_7 Y_7 + (1 - \alpha_7) F_7 \dots\dots\dots$$

$$F_8 = 1,00 \times 28 + (1 - 1,00) \times 25,00 \dots\dots\dots$$

$$\dots\dots\dots F_8 = 28,00$$

$$E_8 = Y_8 - F_8 \dots\dots\dots$$

$$E_8 = 32 - 28,00 \dots\dots\dots$$

$$\dots\dots\dots E_8 = 4,00$$

$$A_8 = \beta E_8 + (1 - \beta) A_{8-1} \dots\dots\dots$$

$$A_8 = 0,99 \times 4,00 + (1 - 0,99) \times 2,99 \dots\dots\dots$$

$$\dots\dots\dots A_8 = 3,99$$

$$M_8 = \beta |E_8| + (1 - \beta) M_{8-1} \dots\dots\dots$$

$$M_8 = 0,99 \times |4,00| + (1 - 0,99) \times 2,99 \dots\dots\dots$$

$$\dots\dots\dots M_8 = 3,99$$

$$PE_8 = \left| \frac{Y_8 - F_8}{Y_8} \right| \times 100 \dots\dots\dots$$

$$PE_8 = \left| \frac{32 - 28,00}{32} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_8 = 12,50$$

Periode ke 9:

$$\dots\dots\dots Y_9 = 34$$

$$\alpha_{8+1} = \left| \frac{A_8}{M_8} \right| \dots\dots\dots$$

$$\alpha_9 = \left| \frac{3,99}{3,99} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_9 = 1,00$$

$$F_{8+1} = \alpha_8 Y_8 + (1 - \alpha_8) F_8 \dots\dots\dots$$

$$F_9 = 1,00 \times 32 + (1 - 1,00) \times 28 \dots\dots\dots$$

$$\dots\dots\dots F_9 = 32,00$$

$$E_9 = Y_9 - F_9 \dots\dots\dots$$

$$E_9 = 34 - 32,00 \dots\dots\dots$$

$$\dots\dots\dots E_9 = 2,00$$

$$A_9 = \beta E_9 + (1 - \beta)A_{9-1} \dots\dots\dots$$

$$A_9 = 0,99 \times 2,00 + (1 - 0,99) \times 3,99 \dots\dots\dots$$

$$\dots\dots\dots A_9 = 2,02$$

$$M_9 = \beta |E_9| + (1 - \beta)M_{9-1} \dots\dots\dots$$

$$M_9 = 0,99 \times |2,00| + (1 - 0,99) \times 3,99 \dots\dots\dots$$

$$\dots\dots\dots M_9 = 2,02$$

$$PE_9 = \left| \frac{Y_9 - F_9}{Y_9} \right| \times 100 \dots\dots\dots$$

$$PE_9 = \left| \frac{34 - 32,00}{34} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_9 = 5,88$$

Periode ke 10:

$$\dots\dots\dots Y_{10} = 30$$

$$\alpha_{9+1} = \left| \frac{A_9}{M_9} \right| \dots\dots\dots$$

$$\alpha_{10} = \left| \frac{2,02}{2,02} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{10} = 1,00$$

$$F_{9+1} = \alpha_9 Y_9 + (1 - \alpha_9) F_9 \dots\dots\dots$$

$$F_{10} = 1,00 \times 34 + (1 - 1,00) \times 32,00 \dots\dots\dots$$

$$\dots\dots\dots F_{10} = 34,00$$

$$E_{10} = Y_{10} - F_{10} \dots\dots\dots$$

$$E_{10} = 30 - 34,00 \dots\dots\dots$$

$$\dots\dots\dots E_{10} = -4,00$$

$$A_{10} = \beta E_{10} + (1 - \beta)A_{10-1} \dots\dots\dots$$

$$A_{10} = 0,99 \times (-4,00) + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots A_{10} = -3,94$$

$$M_{10} = \beta |E_{10}| + (1 - \beta)M_{10-1} \dots\dots\dots$$

$$M_{10} = 0,99 \times |-4,00| + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots M_{10} = 3,98$$

$$PE_{10} = \left| \frac{Y_{10} - F_{10}}{Y_{10}} \right| \times 100 \dots\dots\dots$$

$$PE_{10} = \left| \frac{30-34,00}{30} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_{10} = 13,33$$

Periode ke 11:

$$\dots\dots\dots Y_{11} = 32$$

$$\alpha_{10+1} = \left| \frac{A_{10}}{M_{10}} \right| \dots\dots\dots$$

$$\alpha_{11} = \left| \frac{-3,94}{3,98} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{11} = 0,99$$

$$F_{10+1} = \alpha_{10}Y_{10} + (1 - \alpha_{10})F_{10} \dots\dots\dots$$

$$F_{11} = 1,00 \times 30 + (1 - 1,00) \times 34,00 \dots\dots\dots$$

$$\dots\dots\dots F_{11} = 30,00$$

$$E_{11} = Y_{11} - F_{11} \dots\dots\dots$$

$$E_{11} = 32 - 30,00 \dots\dots\dots$$

$$\dots\dots\dots E_{11} = 2,00$$

$$A_{11} = \beta E_{11} + (1 - \beta)A_{11-1} \dots\dots\dots$$

$$A_{11} = 0,99 \times 2,00 + (1 - 0,99) \times (-3,94) \dots\dots\dots$$

$$\dots\dots\dots A_{11} = 1,94$$

$$M_{11} = \beta |E_{11}| + (1 - \beta)M_{11-1} \dots\dots\dots$$

$$M_{11} = 0,99 \times |2,00| + (1 - 0,99) \times 3,98 \dots\dots\dots$$

$$\dots\dots\dots M_{11} = 2,02$$

$$PE_{11} = \left| \frac{Y_{11}-F_{11}}{Y_{11}} \right| \times 110 \dots\dots\dots$$

$$PE_{11} = \left| \frac{32-30,00}{32} \right| \times 110 \dots\dots\dots$$

$$\dots\dots\dots PE_{11} = 6,25$$

Periode ke 12:

$$\dots\dots\dots Y_{12} = 37$$

$$\alpha_{11+1} = \left| \frac{A_{11}}{M_{11}} \right| \dots\dots\dots$$

$$\alpha_{12} = \left| \frac{1,94}{2,02} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{12} = 0,96$$

$$F_{11+1} = \alpha_{11}Y_{11} + (1 - \alpha_{11})F_{11} \dots\dots\dots$$

$$F_{12} = 0,99 \times 32 + (1 - 0,99) \times 30,00 \dots\dots\dots$$

$$\dots\dots\dots F_{12} = 31,98$$

$$E_{12} = Y_{12} - F_{12} \dots\dots\dots$$

$$E_{12} = 37 - 31,98 \dots\dots\dots$$

$$\dots\dots\dots E_{12} = 5,02$$

$$A_{12} = \beta E_{12} + (1 - \beta)A_{12-1} \dots\dots\dots$$

$$A_{12} = 0,99 \times 5,02 + (1 - 0,99) \times 1,94 \dots\dots\dots$$

$$\dots\dots\dots A_{12} = 4,99$$

$$M_{12} = \beta |E_{12}| + (1 - \beta)M_{12-1} \dots\dots\dots$$

$$M_{12} = 0,99 \times |5,02| + (1 - 0,99) \times 2,02 \dots\dots\dots$$

$$\dots\dots\dots M_{12} = 4,99$$

$$PE_{12} = \left| \frac{Y_{12} - F_{12}}{Y_{12}} \right| \times 120 \dots\dots\dots$$

$$PE_{12} = \left| \frac{37 - 31,98}{37} \right| \times 120 \dots\dots\dots$$

$$\dots\dots\dots PE_{12} = 13,57$$

Periode selanjutnya atau periode ke 13 dan perhitungan MAPE:

$$F_{12+1} = \alpha_{12}Y_{12} + (1 - \alpha_{12})F_{12} \dots\dots\dots$$

$$F_{13} = 0,96 \times 37 + (1 - 0,96) \times 31,98 \dots\dots\dots$$

$$\dots\dots\dots F_{13} = 36,80$$

$$MAPE = \frac{\sum PE}{n} \dots\dots\dots$$

$$MAPE = \frac{5,88+10,58+9,62+8,78+8,00+10,71+12,50+5,88+13,33+6,25+13,57}{11} \dots\dots\dots$$

$$\dots\dots\dots MAPE = 9,56$$

3. Perhitungan peramalan secara manual pada produk NCS *Plan B*

Periode ke 1:

$$\dots\dots\dots Y_1 = 91$$

$$\dots\dots\dots \alpha_1 = 0$$

$$\dots\dots\dots F_1 = 0$$

$$\dots\dots\dots E_1 = 0$$

$$(Inisialisasi) \dots\dots\dots A_1 = 0$$

(Inisialisasi)..... $M_1 = 0$

..... $PE_1 = 0$

Periode ke 2:

..... $Y_2 = 102$

(Inisialisasi)..... $\alpha_2 = 0,75$

(Inisialisasi)..... $F_2 = 91,00$

$E_2 = Y_2 - F_2$

$E_2 = 102 - 91,00$

..... $E_2 = 11,00$

$A_2 = \beta E_2 + (1 - \beta)A_{2-1}$

$A_2 = 0,75 \times 11,00 + (1 - 0,75) \times 0$

..... $A_2 = 8,25$

$M_2 = \beta|E_2| + (1 - \beta)M_{2-1}$

$M_2 = 0,75 \times |11,00| + (1 - 0,75) \times 0$

..... $M_2 = 8,25$

$PE_2 = \left| \frac{Y_2 - F_2}{Y_2} \right| \times 100$

$PE_2 = \left| \frac{102 - 91,00}{102} \right| \times 100$

..... $PE_2 = 10,78$

Periode ke 3:

..... $Y_3 = 95$

(Inisialisasi)..... $\alpha_3 = 0,75$

$F_{2+1} = \alpha_2 Y_2 + (1 - \alpha_2) F_2$

$F_3 = 0,75 \times 102 + (1 - 0,75) \times 91,00$

..... $F_3 = 99,25$

$E_3 = Y_3 - F_3$

$E_3 = 95 - 99,25$

..... $E_3 = -4,25$

$A_3 = \beta E_3 + (1 - \beta)A_{3-1}$

$A_3 = 0,75 \times (-4,25) + (1 - 0,75) \times 8,25$

$$\dots\dots\dots A_3 = -1,13$$

$$M_3 = \beta|E_3| + (1 - \beta)M_{3-1} \dots\dots\dots$$

$$M_3 = 0,75 \times |-4,25| + (1 - 0,75) \times 8,25 \dots\dots\dots$$

$$\dots\dots\dots M_3 = 5,25$$

$$PE_3 = \left| \frac{Y_3 - F_3}{Y_3} \right| \times 100 \dots\dots\dots$$

$$PE_3 = \left| \frac{95 - 99,25}{95} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_3 = 4,47$$

Periode ke 4:

$$\dots\dots\dots Y_4 = 116$$

$$\text{(Inisialisasi)} \dots\dots\dots \alpha_4 = 0,75$$

$$F_{3+1} = \alpha_3 Y_3 + (1 - \alpha_3) F_3 \dots\dots\dots$$

$$F_4 = 0,75 \times 95 + (1 - 0,75) \times 99,25 \dots\dots\dots$$

$$\dots\dots\dots F_4 = 96,06$$

$$E_4 = Y_4 - F_4 \dots\dots\dots$$

$$E_4 = 116 - 96,06 \dots\dots\dots$$

$$\dots\dots\dots E_4 = 19,94$$

$$A_4 = \beta E_4 + (1 - \beta) A_{4-1} \dots\dots\dots$$

$$A_4 = 0,75 \times 19,94 + (1 - 0,75) \times (-1,13) \dots\dots\dots$$

$$\dots\dots\dots A_4 = 14,67$$

$$M_4 = \beta|E_4| + (1 - \beta)M_{4-1} \dots\dots\dots$$

$$M_4 = 0,75 \times |19,94| + (1 - 0,75) \times 5,25 \dots\dots\dots$$

$$\dots\dots\dots M_4 = 16,27$$

$$PE_4 = \left| \frac{Y_4 - F_4}{Y_4} \right| \times 100 \dots\dots\dots$$

$$PE_4 = \left| \frac{116 - 96,06}{116} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_4 = 17,19$$

Periode ke 5:

$$\dots\dots\dots Y_5 = 109$$

$$\alpha_{4+1} = \left| \frac{A_4}{M_4} \right| \dots\dots\dots$$

$$\alpha_5 = \left| \frac{14,67}{16,27} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_5 = 0,90$$

$$F_{4+1} = \alpha_4 Y_4 + (1 - \alpha_4) F_4 \dots\dots\dots$$

$$F_5 = 0,75 \times 116 + (1 - 0,75) \times 96,06 \dots\dots\dots$$

$$\dots\dots\dots F_5 = 111,02$$

$$E_5 = Y_5 - F_5 \dots\dots\dots$$

$$E_5 = 109 - 111,02 \dots\dots\dots$$

$$\dots\dots\dots E_5 = -2,02$$

$$A_5 = \beta E_5 + (1 - \beta) A_{5-1} \dots\dots\dots$$

$$A_5 = 0,75 \times (-2,02) + (1 - 0,75) \times 14,67 \dots\dots\dots$$

$$\dots\dots\dots A_5 = 2,16$$

$$M_5 = \beta |E_5| + (1 - \beta) M_{5-1} \dots\dots\dots$$

$$M_5 = 0,75 \times |-2,02| + (1 - 0,75) \times 16,27 \dots\dots\dots$$

$$\dots\dots\dots M_5 = 5,58$$

$$PE_5 = \left| \frac{Y_5 - F_5}{Y_5} \right| \times 100 \dots\dots\dots$$

$$PE_5 = \left| \frac{109 - 111,02}{109} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_5 = 1,85$$

Periode ke 6:

$$\dots\dots\dots Y_6 = 146$$

$$\alpha_{5+1} = \left| \frac{A_5}{M_5} \right| \dots\dots\dots$$

$$\alpha_6 = \left| \frac{2,16}{5,58} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_6 = 0,39$$

$$F_{5+1} = \alpha_5 Y_5 + (1 - \alpha_5) F_5 \dots\dots\dots$$

$$F_6 = 0,90 \times 109 + (1 - 0,90) \times 111,02 \dots\dots\dots$$

$$\dots\dots\dots F_6 = 109,20$$

$$E_6 = Y_6 - F_6 \dots\dots\dots$$

$$E_6 = 146 - 109,20 \dots\dots\dots$$

$$\dots\dots\dots E_6 = 36,80$$

$$A_6 = \beta E_6 + (1 - \beta)A_{6-1} \dots\dots\dots$$

$$A_6 = 0,75 \times 36,80 + (1 - 0,75) \times 2,16 \dots\dots\dots$$

$$\dots\dots\dots A_6 = 28,14$$

$$M_6 = \beta |E_6| + (1 - \beta)M_{6-1} \dots\dots\dots$$

$$M_6 = 0,75 \times |36,80| + (1 - 0,75) \times 5,58 \dots\dots\dots$$

$$\dots\dots\dots M_6 = 29$$

$$PE_6 = \left| \frac{Y_6 - F_6}{Y_6} \right| \times 100 \dots\dots\dots$$

$$PE_6 = \left| \frac{146 - 109,20}{146} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_6 = 25,21$$

Periode ke 7:

$$\dots\dots\dots Y_7 = 123$$

$$\alpha_{6+1} = \left| \frac{A_6}{M_6} \right| \dots\dots\dots$$

$$\alpha_7 = \left| \frac{28,14}{29} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_7 = 0,97$$

$$F_{6+1} = \alpha_6 Y_6 + (1 - \alpha_6)F_6 \dots\dots\dots$$

$$F_7 = 0,39 \times 146 + (1 - 0,39) \times 109,20 \dots\dots\dots$$

$$\dots\dots\dots F_7 = 123,42$$

$$E_7 = Y_7 - F_7 \dots\dots\dots$$

$$E_7 = 123 - 123,42 \dots\dots\dots$$

$$\dots\dots\dots E_7 = -0,42$$

$$A_7 = \beta E_7 + (1 - \beta)A_{7-1} \dots\dots\dots$$

$$A_7 = 0,75 \times (-0,42) + (1 - 0,75) \times 28,14 \dots\dots\dots$$

$$\dots\dots\dots A_7 = 6,72$$

$$M_7 = \beta |E_7| + (1 - \beta)M_{7-1} \dots\dots\dots$$

$$M_7 = 0,75 \times |-0,42| + (1 - 0,75) \times 29,00 \dots\dots\dots$$

$$\dots\dots\dots M_7 = 7,57$$

$$PE_7 = \left| \frac{Y_7 - F_7}{Y_7} \right| \times 100 \dots\dots\dots$$

$$PE_7 = \left| \frac{123 - 123,42}{123} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_7 = 0,34$$

Periode ke 8:

$$\dots\dots\dots Y_8 = 126$$

$$\alpha_{7+1} = \left| \frac{A_7}{M_7} \right| \dots\dots\dots$$

$$\alpha_8 = \left| \frac{6,72}{7,57} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_8 = 0,89$$

$$F_{7+1} = \alpha_7 Y_7 + (1 - \alpha_7) F_7 \dots\dots\dots$$

$$F_8 = 0,97 \times 123 + (1 - 0,97) \times 123,42 \dots\dots\dots$$

$$\dots\dots\dots F_8 = 123,01$$

$$E_8 = Y_8 - F_8 \dots\dots\dots$$

$$E_8 = 126 - 123,01 \dots\dots\dots$$

$$\dots\dots\dots E_8 = 2,99$$

$$A_8 = \beta E_8 + (1 - \beta) A_{8-1} \dots\dots\dots$$

$$A_8 = 0,75 \times 2,99 + (1 - 0,75) \times 6,72 \dots\dots\dots$$

$$\dots\dots\dots A_8 = 3,92$$

$$M_8 = \beta |E_8| + (1 - \beta) M_{8-1} \dots\dots\dots$$

$$M_8 = 0,75 \times |2,99| + (1 - 0,75) \times 7,57 \dots\dots\dots$$

$$\dots\dots\dots M_8 = 4,13$$

$$PE_8 = \left| \frac{Y_8 - F_8}{Y_8} \right| \times 100 \dots\dots\dots$$

$$PE_8 = \left| \frac{126 - 123,01}{126} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_8 = 2,37$$

Periode ke 9:

$$\dots\dots\dots Y_9 = 128$$

$$\alpha_{8+1} = \left| \frac{A_8}{M_8} \right| \dots\dots\dots$$

$$\alpha_9 = \left| \frac{3,92}{4,13} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_9 = 0,95$$

$$F_{8+1} = \alpha_8 Y_8 + (1 - \alpha_8) F_8 \dots\dots\dots$$

$$F_9 = 0,89 \times 126 + (1 - 0,89) \times 123,01 \dots\dots\dots$$

$$\dots\dots\dots F_9 = 125,66$$

$$E_9 = Y_9 - F_9 \dots\dots\dots$$

$$E_9 = 128 - 125,66 \dots\dots\dots$$

$$\dots\dots\dots E_9 = 2,34$$

$$A_9 = \beta E_9 + (1 - \beta)A_{9-1} \dots\dots\dots$$

$$A_9 = 0,75 \times 2,34 + (1 - 0,75) \times 3,92 \dots\dots\dots$$

$$\dots\dots\dots A_9 = 2,73$$

$$M_9 = \beta |E_9| + (1 - \beta)M_{9-1} \dots\dots\dots$$

$$M_9 = 0,75 \times |2,34| + (1 - 0,75) \times 4,13 \dots\dots\dots$$

$$\dots\dots\dots M_9 = 2,78$$

$$PE_9 = \left| \frac{Y_9 - F_9}{Y_9} \right| \times 100 \dots\dots\dots$$

$$PE_9 = \left| \frac{128 - 125,66}{128} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_9 = 1,82$$

Periode ke 10:

$$\dots\dots\dots Y_{10} = 133$$

$$\alpha_{9+1} = \left| \frac{A_9}{M_9} \right| \dots\dots\dots$$

$$\alpha_{10} = \left| \frac{2,73}{2,78} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{10} = 0,98$$

$$F_{9+1} = \alpha_9 Y_9 + (1 - \alpha_9) F_9 \dots\dots\dots$$

$$F_{10} = 0,95 \times 128 + (1 - 0,95) \times 125,66 \dots\dots\dots$$

$$\dots\dots\dots F_{10} = 127,88$$

$$E_{10} = Y_{10} - F_{10} \dots\dots\dots$$

$$E_{10} = 133 - 127,88 \dots\dots\dots$$

$$\dots\dots\dots E_{10} = 5,12$$

$$A_{10} = \beta E_{10} + (1 - \beta)A_{10-1} \dots\dots\dots$$

$$A_{10} = 0,75 \times 5,12 + (1 - 0,75) \times 2,73 \dots\dots\dots$$

$$\dots\dots\dots A_{10} = 4,52$$

$$M_{10} = \beta |E_{10}| + (1 - \beta)M_{10-1} \dots\dots\dots$$

$$M_{10} = 0,75 \times |5,12| + (1 - 0,75) \times 2,78 \dots\dots\dots$$

$$\dots\dots\dots M_{10} = 4,54$$

$$PE_{10} = \left| \frac{Y_{10} - F_{10}}{Y_{10}} \right| \times 100 \dots\dots\dots$$

$$PE_{10} = \left| \frac{133 - 127,88}{133} \right| \times 100 \dots\dots\dots$$

$$\dots\dots\dots PE_{10} = 3,85$$

Periode ke 11:

$$\dots\dots\dots Y_{11} = 141$$

$$\alpha_{10+1} = \left| \frac{A_{10}}{M_{10}} \right| \dots\dots\dots$$

$$\alpha_{11} = \left| \frac{4,52}{4,54} \right| \dots\dots\dots$$

$$\dots\dots\dots \alpha_{11} = 1,00$$

$$F_{10+1} = \alpha_{10}Y_{10} + (1 - \alpha_{10})F_{10} \dots\dots\dots$$

$$F_{11} = 0,98 \times 133 + (1 - 0,98) \times 127,88 \dots\dots\dots$$

$$\dots\dots\dots F_{11} = 132,90$$

$$E_{11} = Y_{11} - F_{11} \dots\dots\dots$$

$$E_{11} = 141 - 132,90 \dots\dots\dots$$

$$\dots\dots\dots E_{11} = 8,10$$

$$A_{11} = \beta E_{11} + (1 - \beta)A_{11-1} \dots\dots\dots$$

$$A_{11} = 0,75 \times 8,10 + (1 - 0,75) \times 4,52 \dots\dots\dots$$

$$\dots\dots\dots A_{11} = 7,20$$

$$M_{11} = \beta |E_{11}| + (1 - \beta)M_{11-1} \dots\dots\dots$$

$$M_{11} = 0,75 \times |8,10| + (1 - 0,75) \times 4,54 \dots\dots\dots$$

$$\dots\dots\dots M_{11} = 7,21$$

$$PE_{11} = \left| \frac{Y_{11} - F_{11}}{Y_{11}} \right| \times 110 \dots\dots\dots$$

$$PE_{11} = \left| \frac{141 - 132,90}{141} \right| \times 110 \dots\dots\dots$$

$$\dots\dots\dots PE_{11} = 5,74$$

Periode ke 12:

$$\dots\dots\dots Y_{12} = 139$$

$$\alpha_{11+1} = \left| \frac{A_{11}}{M_{11}} \right| \dots\dots\dots$$

$$\alpha_{12} = \left| \frac{7,20}{7,21} \right| \dots \alpha_{12} = 1,00$$

$$F_{11+1} = \alpha_{11}Y_{11} + (1 - \alpha_{11})F_{11} \dots$$

$$F_{12} = 1,00 \times 141 + (1 - 1,00) \times 132,90 \dots F_{12} = 140,98$$

$$E_{12} = Y_{12} - F_{12} \dots$$

$$E_{12} = 139 - 140,98 \dots E_{12} = -1,98$$

$$A_{12} = \beta E_{12} + (1 - \beta)A_{12-1} \dots$$

$$A_{12} = 0,75 \times -1,98 + (1 - 0,75) \times 7,20 \dots A_{12} = 0,32$$

$$M_{12} = \beta |E_{12}| + (1 - \beta)M_{12-1} \dots$$

$$M_{12} = 0,75 \times |-1,98| + (1 - 0,75) \times 7,21 \dots M_{12} = 3,28$$

$$PE_{12} = \left| \frac{Y_{12} - F_{12}}{Y_{12}} \right| \times 120 \dots$$

$$PE_{12} = \left| \frac{139 - 140,98}{139} \right| \times 120 \dots PE_{12} = 1,42$$

Periode selanjutnya atau periode ke 13 dan perhitungan MAPE:

$$F_{12+1} = \alpha_{12}Y_{12} + (1 - \alpha_{12})F_{12} \dots$$

$$F_{13} = 1,00 \times 139 + (1 - 1,00) \times 140,98 \dots F_{13} = 139,00$$

$$MAPE = \frac{\sum PE}{n} \dots$$

$$MAPE = \frac{10,78+4,47+17,19+1,85+25,21+0,34+2,37+1,82+3,85+5,74+1,42}{11} \dots MAPE = 6,82$$

Lampiran D. Pengujian Peramalan Penjualan Menggunakan Sistem

Pengujian peramalan penjualan menggunakan sistem dibagi menjadi 3 sesuai data penjualan produk-produk PT. Natura Prima *Beauty* di antaranya Natura *Beauty Spray* (NBS), Natura *Chocolate Soap plan A* (NCS *plan A*), dan Natura

Chocolate Soap plan B (NCS *plan B*) mulai dari periode bulan November 2017 sampai dengan Oktober 2018 yaitu:

1. Pengujian Peramalan Penjualan Pada Produk NBS

Tampilan memasukkan atribut periode awal dan periode akhir pada sistem dapat dilihat pada Gambar berikut:

Arrevan Home About Forecasting

Select Forecasting Period

Initial period
November 2017

Final Period
October 2018

Previous Next

Tampilan memasukkan data aktual pada sistem dapat dilihat pada Gambar berikut:

Arrevan Home About Forecasting

Please Enter The Actual Data

2149

2202

2305

2441

2607

2761

3243

3128

3343

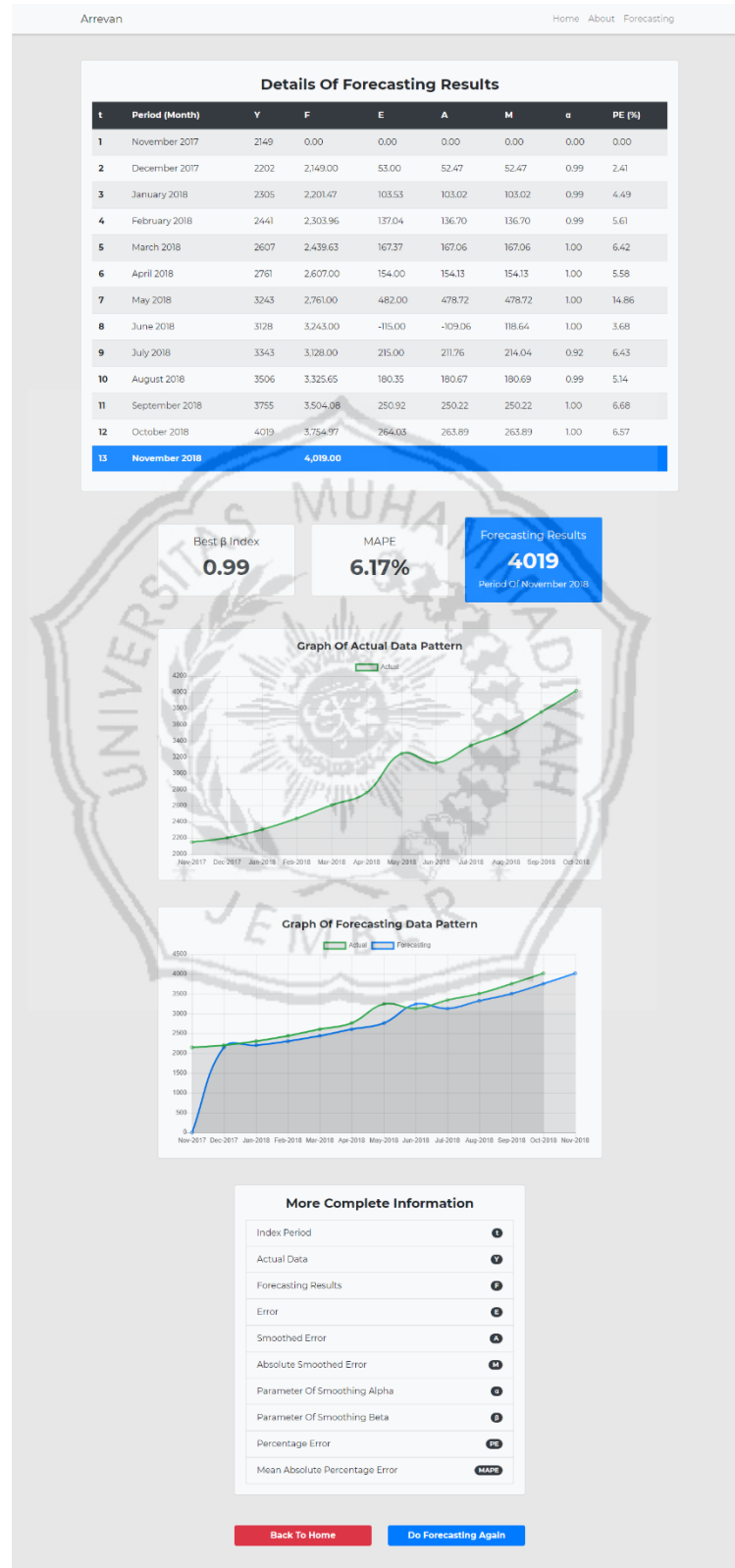
3506

3755

4019

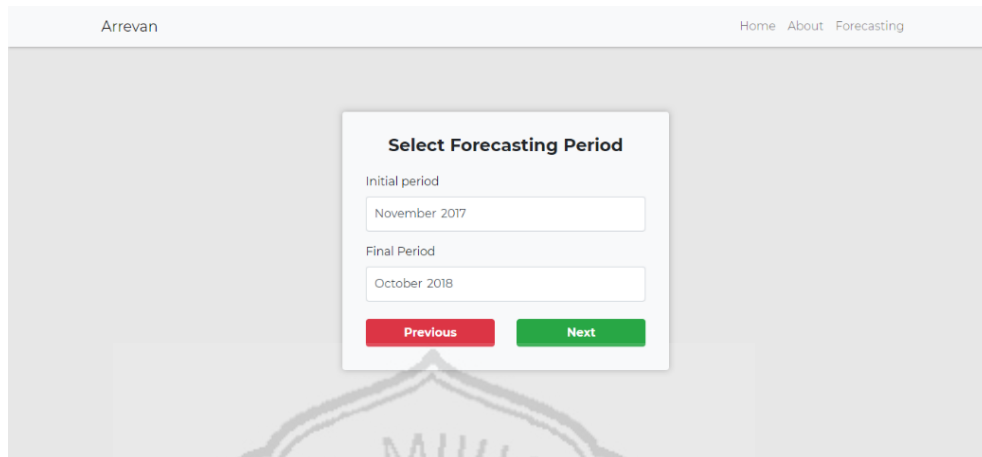
Previous Start Forecasting

Tampilan data hasil peramalan penjualan produk NBS pada Sistem dapat dilihat pada Gambar berikut:



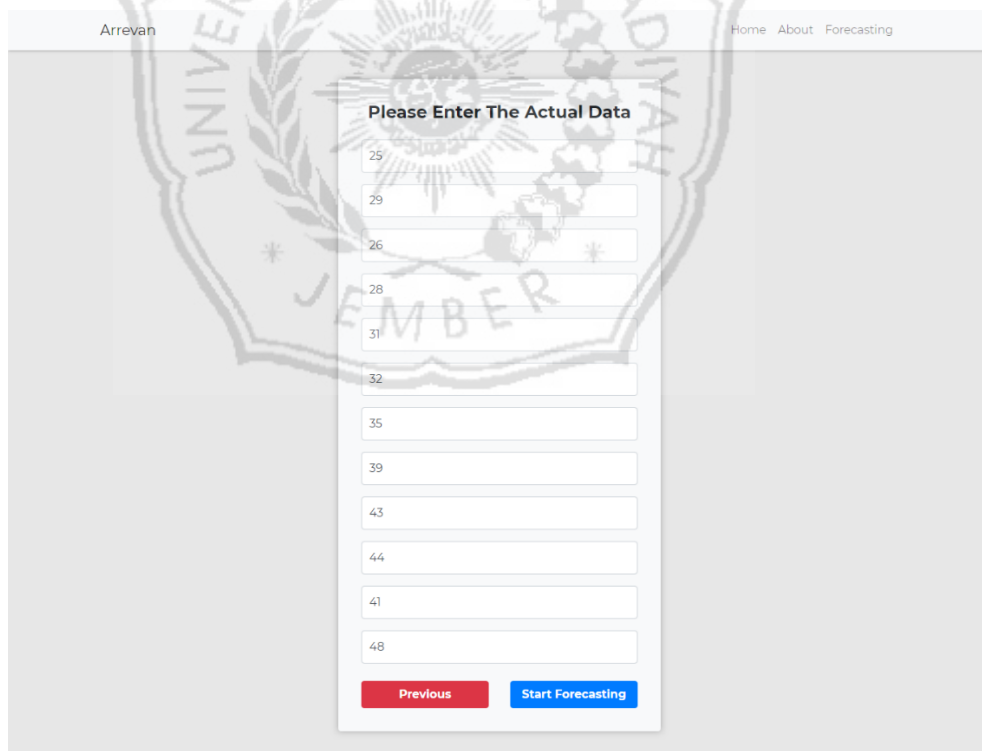
2. Pengujian Peramalan Penjualan Pada Produk NCS *plan A*

Tampilan memasukkan atribut periode awal dan periode akhir pada sistem dapat dilihat pada Gambar berikut:



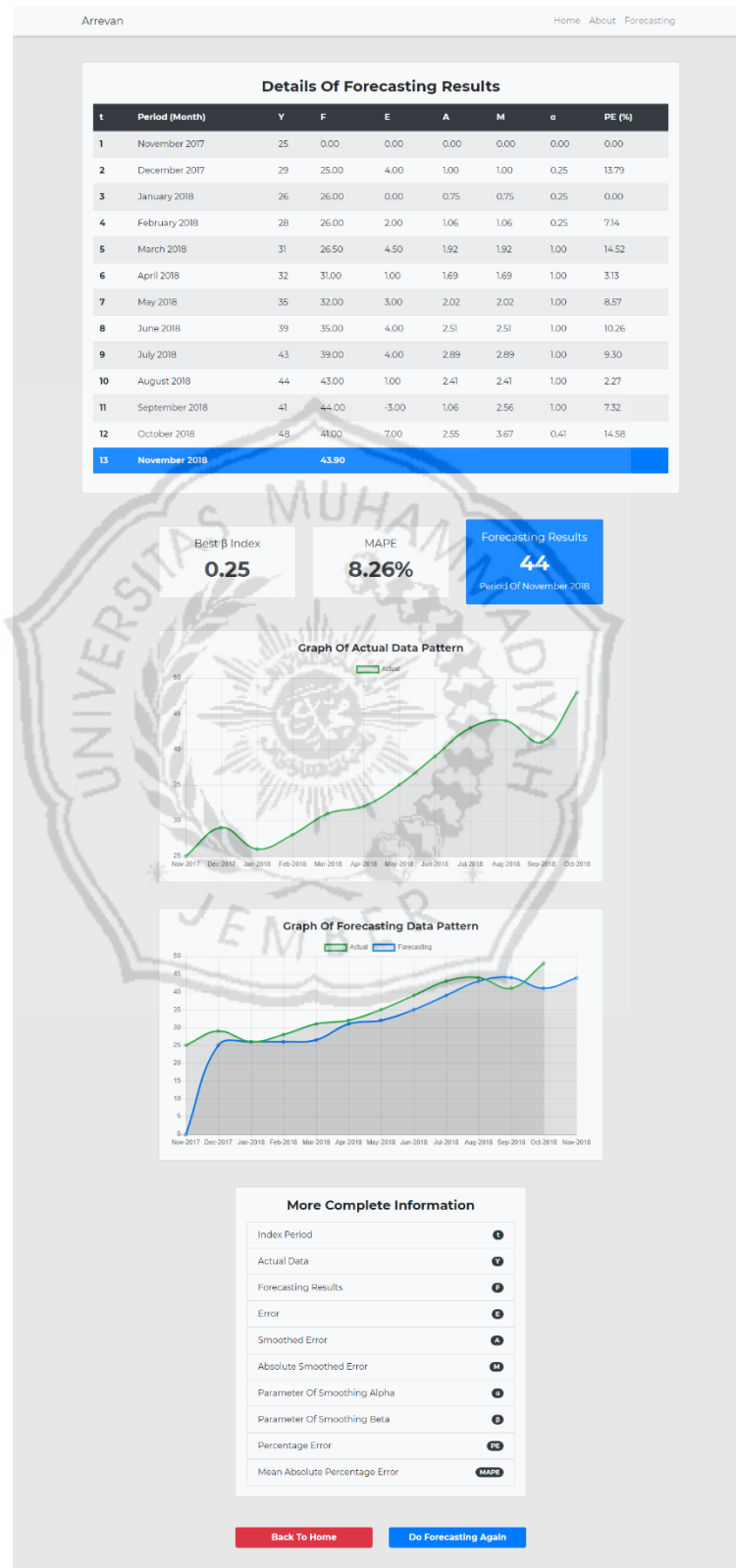
The screenshot shows a web application interface for 'Arrevan'. At the top, there is a navigation bar with 'Home', 'About', and 'Forecasting' links. The main content area displays a form titled 'Select Forecasting Period'. This form contains two input fields: 'Initial period' with the value 'November 2017' and 'Final Period' with the value 'October 2018'. Below these fields are two buttons: a red 'Previous' button and a green 'Next' button. A large, semi-transparent watermark of the Universitas Muhammadiyah Jember logo is visible in the background of the form.

Tampilan memasukkan data aktual pada sistem dapat dilihat pada Gambar berikut:



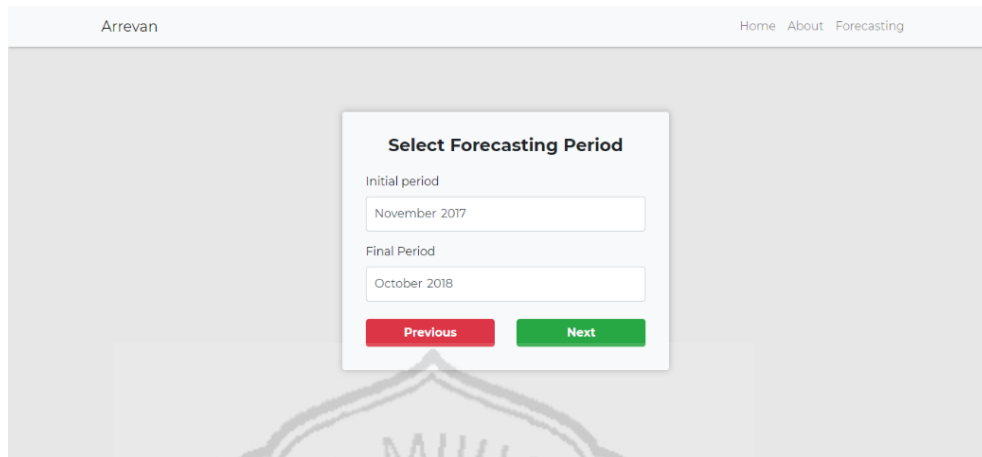
The screenshot shows the same web application interface. The main content area displays a form titled 'Please Enter The Actual Data'. This form consists of a vertical list of 15 input fields, each preceded by a date label: 25, 29, 26, 28, 31, 32, 35, 39, 43, 44, 41, and 48. At the bottom of the form are two buttons: a red 'Previous' button and a blue 'Start Forecasting' button. The same Universitas Muhammadiyah Jember watermark is present in the background.

Tampilan data hasil peramalan penjualan produk NCS *plan A* pada Sistem dapat dilihat pada Gambar berikut:



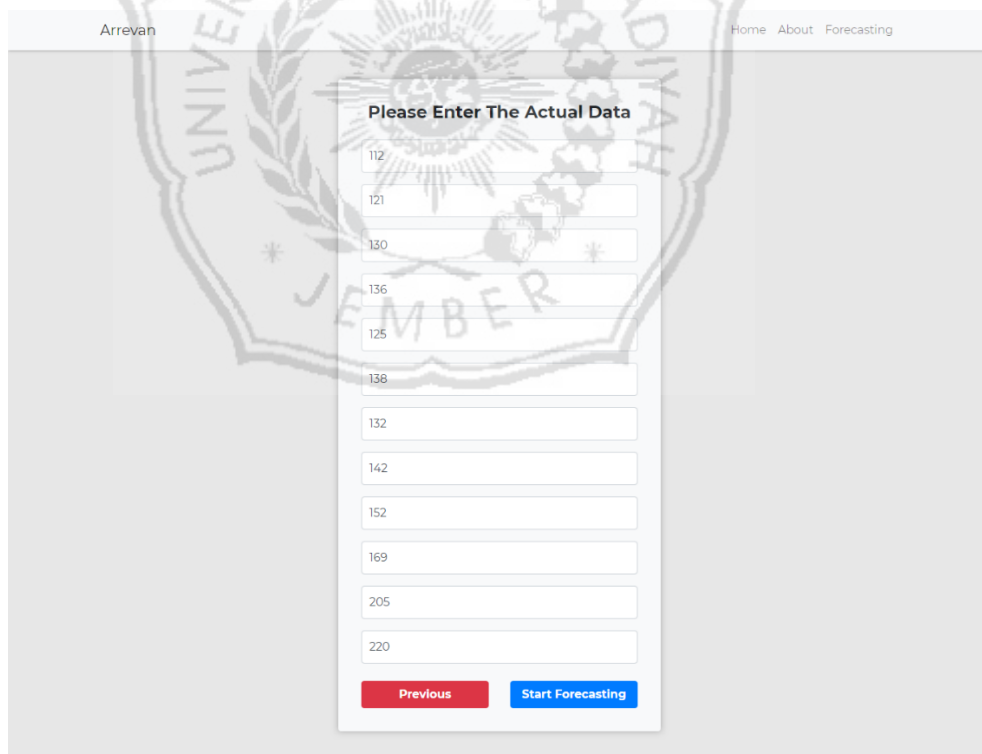
3. Pengujian Peramalan Penjualan Pada Produk NCS *plan B*

Tampilan memasukkan atribut periode awal dan periode akhir pada sistem dapat dilihat pada Gambar berikut:



The screenshot shows a web application interface for 'Arrevan'. At the top, there is a navigation bar with 'Home', 'About', and 'Forecasting' links. The main content area displays a form titled 'Select Forecasting Period'. This form has two input fields: 'Initial period' with the value 'November 2017' and 'Final Period' with the value 'October 2018'. Below these fields are two buttons: a red 'Previous' button and a green 'Next' button. A large, semi-transparent watermark of the Universitas Muhammadiyah Jember logo is visible in the background of the form.

Tampilan memasukkan data aktual pada sistem dapat dilihat pada Gambar berikut:



The screenshot shows the same web application interface. The main content area displays a form titled 'Please Enter The Actual Data'. This form contains a vertical list of 15 input fields, each with a numerical value displayed above it: 112, 121, 130, 136, 125, 138, 132, 142, 152, 169, 205, and 220. At the bottom of the form are two buttons: a red 'Previous' button and a blue 'Start Forecasting' button. The same Universitas Muhammadiyah Jember logo watermark is present in the background.

Tampilan data hasil peramalan penjualan produk NCS *plan* B pada Sistem dapat dilihat pada Gambar berikut:

