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LAMPIRAN

Lampiran 1 Surat Pengantar PT. IKI ke Unit Kerja Bersangkutan

SURAT PENGANTAR

Nomor : 193 / IKI-STM / WI / 2023

Kepada Yth : Bapak GM. Permisaran
Cq.

Dari : Sekretaris Perusahaan
Cq. Manager SDM

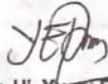
Perihal : Penempatan dan Bimbingan Siswa(i) / Mahasiswa(i)

Dengan Hormat,

Mohon dapat di bantu untuk dibimbing / diarahkan Siswa(i) / Mahasiswa(i) UNHAS yang akan melaksanakan Penelitian/Pengambilan Data, Praktek Kerja-Industri; PKI; OJT; KKN dan magang. Sebanyak, 1 (satu) Orang sesuai dengan jurusan Siswa(i) / Mahasiswa(i) tercantum dalam surat dari Sekolah/Kampus.

Demikian disampaikan, atas perhatian dan kerjasama yang baik diucapkan Terima Kasih.

Makassar, 20-08 2023
PT. Industri Kapal Indonesia (Persero)


Ir. Hj. Yusril Ermita Saleh
Manager SDM

Lampiran 2 Surat Balasan Persetujuan Penelitian PT. IKI ke Pihak Kampus



BUMI UNTUK
INDONESIA



IKI
SHIPYARD

Nomor : 132 /IKI-SDM / VIII / 2023
 Lampiran : -
 Perihal : Penelitian

Kepada Yth,
Wakil Dekan Bidang Akademik Dan Kemahasiswaan
Fakultas Teknik Universitas Hasanuddin
 Di -

Tempat

Dengan Hormat,
 Menindaklanjuti Surat Bapak Nomor 18085/UN4.7.1/PT.01.01/2023 tanggal 15 Agustus 2023 Perihal Penelitian, maka bersama ini disampaikan bahwa PT. Industri Kapal Indonesia (Persero) dapat menyetujui dan memberikan kesempatan terhitung mulai tanggal 31 Agustus 2023 s/d 31 September 2023, kepada mahasiswa tersebut dibawah ini :

No.	Nama	Stambuk	Judul
1.	Muwaffaq Ahnaf Shiddiq	D071191022	"Pengoptimalan Estimasi Durasi Dry Docking Kapal Menggunakan Model Artificial Neural (ANN) Dengan Algoritma Backpropagation (Studi Kasus: PT Industri Kapal Indonesia)"

Hal yang perlu dipatuhi selama menjalankan Penelitian adalah sebagai berikut :

- Peserta Penelitian terlebih dahulu melapor pada Departemen SDM untuk mendapatkan penjelasan lebih lanjut.
- Peserta Penelitian diharuskan mentaati semua ketentuan perusahaan.
- Peserta Penelitian diharuskan memakai pakaian seragam, Pakaian Kerja, tanda pengenal (atribut) sepatu, Khusus pria rambut tidak melewati krah baju serta memakai helm pengaman.
- Peserta Penelitian apabila tertimpa Musibah / kecelakaan kerja pada PT. Industri Kapal Indonesia (Persero) hanya dapat memberikan pertolongan pertama pada poliklinik perusahaan dan perawatan lanjutan menjadi tanggungan yang bersangkutan.
- Peserta Penelitian mengasuransikan diri.
- Peserta Penelitian setelah selesai melaksanakan Penelitian diwajibkan menyerahkan 1 (satu) rangkap laporannya pada SDM.

Demikian disampaikan, atas perhatiannya diucapkan terima kasih.

Makassar, 31 Agustus 2023

PT. INDUSTRI KAPAL INDONESIA (Persero)



Ir. Hj. Yudi Ermita Saleh, MM
 Manager SDM

Cc :

1. GM. Produksi
2. Arsip



**BANGSA BUATAN
INDONESIA**

Amanah – Kompeten – Harmonis – Loyal – Adaptif – Kolaboratif

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 Tels/Fax : -

PT INDIAT KAPAL INDONESIA (PUSAT)

PT INDIAT KAPAL INDONESIA (PUSAT)

PT INDIAT KAPAL INDONESIA (PUSAT)
FORM REPORT MONITORING PROGRES EVALUASI DAN ANALISA

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Lampiran 4 Dokumen Kapal Masuk Fasilitas Dock PT. IKI

NO	LAPO
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4	KMP. B
5	KM. SA
6	KM. KA
7	BC. 30
8	KUDA
9	KMP.
10	KMP.
11	KMP.
12	MB
13	TB
14	BC
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NO	DOCKING REPORT 2022
1	KM. GANDHA NUSANTARA 12
2	LCT. ABIDZART 04
3	KMP. BALIBO
4	KM. SABUK NUSANTARA 85
5	TK. ZULKARNAIN 99
6	KMP. MERAK
7	KMP. MADANI NUSANTARA
8	TB. RSA 99
9	KM. SIRIMAU
10	KLM. SEQUOIA
11	KM. GANDHA NUSANTARA 09
12	KLM. SINAR HARAPAN V
13	KM. LUCKY STAR 88
14	SPOB. SEMBILAN PILAR
15	TB. UPUTAN PENDINGIN 01
16	BG. NEPTUNE
17	KMP. BALIBO
18	KLM. SEQUOIA
19	KM. SANGIANG
20	KM. GANDHA NUSANTARA 19
21	KMP. TELUK CENDRAWASIH II
22	KMP. TELUK CENDRAWASIH II
23	KMP. TELUK CENDRAWASIH II
24	KM. WILIS
25	TK. MITCHELL III
26	BG. RSA NUSA WALUYA 2
27	KM. SEASEA 1
28	KMP. SATYA KENCANA II
29	TB. TEMAN SEJATI III
30	KMP. SULTAN MURHUM II
31	KMP. PULAU RUBIAH
32	KM. GANDHA NUSANTARA 14
33	TB. LAJU 2
34	KM. SABUK NUSANTARA 67
35	CSD. QUEEN VICTORIA
36	KM. SABUK NUSANTARA 78
37	KMP. KOTA MUNA
38	KMP. MANDALA NUSANTARA
39	KMP. DHARMA KENCANA 1
40	KM. SABUK NUSANTARA 66
41	KM. GANDHA NUSANTARA 16
42	KFC. JETLINER
43	KL. SULTAN HASANUDDIN
44	BG. BILL-10
45	TB. BINA OCEAN 10
46	KMP. TAKABONERATE

Lampiran 5 Hasil Konversi Data Fisik *Docking Record* ke dalam Format Excel

Year of Docking Record	Ship's Name	DWT/GT (Ton)	Age (Years)	Type	Dry Docking Works (Routine Maintenance)							Docking Duration		
					Plate Work (kg)	Sand Blasting/Sweep Blasting (m2)	Painting Work (m2)	Tank Cleaning (m3)	Valve Work (ea)	Hull Cleaning (m2)	Finish Estimation (day)	Realization (day)		
2021	MA. TATMALAU	6040	31	Penumpang	17000	1874	1968	1041	58	2325	13	24		
2021	MA. GANDHANUSANTARA14	92	4	Rede	2000	360	450	40	13	405	5	13		
2021	MMP. KOTAMUNA	686	47	Penumpang	4543	917	2751	759	47	917	6	12		
2021	MA. GANDHANUSANTARA19	92	4	Rede	2000	360	450	40	13	405	5	11		
2021	MA. GANDHANUSANTARA16	92	4	Rede	2000	360	450	40	13	405	5	11		
2021	MA. PSC III	14	4	Tambat	620	65	349	45	5	65	15	19		
2021	MA. AQUARIUS III	901	40	Kargo	2500	1409	3975	267	5	1409	18	14		
2021	MMP. KORMOMOLIN	884	22	Penumpang	4217	789	2367	309	23	1274	8	14		
2021	TR. MGV 202	271	5	Tunda	2500	377	1228	45	2	754	10	22		
2021	TR. B3103	901	24	Tanker	40000	3190	6381	1243	9	6185	30	14		
2021	MA. SANGIANG	2620	22	Penumpang	15000	1670	1670	600	64	1105	15	21		
2021	AUDANIL EXPLORER	923	3	Pesiar	5800	700	800	453	3	1822	10	15		
2021	CB. KCH-6	657	18	Kargo	5000	599	1814	423	28	1103	10	10		
2021	TR. PMP 1204	175	19	Tunda	2500	248	713	312	8	465	10	15		
2021	MMP. RAHAHA	1029	8	Penumpang	6704	874	2622	1032	24	1584	12	11		
2021	MT. GAS AUDORA	2954	23	Tanker	2400	2051	6462	2765	8	4102	17	29		
2021	MA. SABUKUSANTARA67	2091	3	Penumpang	4000	1057	1992	170	27	1190	13	13		
2021	MMP. MERAK	862	51	Penumpang	1700	930	2790	1758	24	1328	12	16		
2021	MMP. BALIRO	540	25	Penumpang	5571	801	2175	532	17	1100	7	13		
2021	MA. SIRMAU	6040	30	Penumpang	10000	2896	2913	1331	60	2342	13	20		
2021	BG. ORCALAUT796	2573	17	Tongkang	20000	200	200	680	73	200	20	30		
2021	MA. KHOS II	1581	18	Kargo	2000	1377	4132	156	7	2514	15	20		
2021	MA. VELOCAN	410	1	Penumpang	2500	953	2859	1211	4	953	9	13		
2021	BC. 3006	225	5	Patrol	100	194	2102	38	4	777	14	14		
2021	MT. MALALVII	3495	17	Tanker	3700	2248	6744	486	4	4496	8	10		
2021	MA. GANDHANUSANTARA09	92	4	Rede	2000	360	450	40	13	405	5	8		
2021	MA. SABUKUSANTARA85	2097	3	Penumpang	5000	1180	1643	271	48	1480	6	9		
2021	MA. SABUKUSANTARA93	1275	3	Penumpang	4000	987	1565	249	27	1181	6	11		
2021	MA. CARAKAJAR III-11	3256	33	Kargo	7490	2572	7716	382	5	4124	12	25		
2021	MA. SABUKUSANTARA108	1259	3	Penumpang	3000	332	2352	172	28	1024	6	9		
2021	KFC. JETLINER	4563	26	Penumpang	3000	852	3063	400	84	1982	14	30		
2021	KN. DE BRILL	1419	3	Penumpang	7689	1046	1692	1689	5	1892	14	22		
2021	MA. KENDHAGANUSANTARA06	1766	2	Kargo	5000	3554	12318	4854	7	4106	10	12		
2021	MA. SABUKUSANTARA78	2087	3	Penumpang	3000	1212	1789	234	24	1263	6	9		
2021	MA. GANDHANUSANTARA12	92	4	Rede	2000	360	450	40	13	405	5	8		
2021	GSD. BATANG HARI 30	2550	27	Dredger	3800	5223	11735	512	14	5866	20	10		
2021	MMP. RAADJAU	937	4	Penumpang	2000	902	2575	1145	5	1673	15	13		
2021	KN. SARAKARAJA104	1058	1	Patrol	150	888	2665	112	3	1777	8	16		
2021	MA. SABUKUSANTARA90	2086	3	Penumpang	4000	1112	2701	302	22	1313	6	20		
2021	MA. MAALLO	482	7	Pesiar	2500	960	1440	1267	32	960	10	19		
2021	KT. SUNGA SODANG	207	8	Tunda	4500	298	852	178	3	554	45	62		
2021	MA. SABUKUSANTARA66	563	4	Penumpang	2000	564	1812	101	19	636	5	14		
2021	MT. OLYMPICX	3834	21	Tanker	1300	2621	7863	3218	5	4924	15	19		
2021	TR. MEGATOP-7	252	16	Tunda	4500	559	561	289	10	863	10	16		
2021	BG. BUANAWA3009	3453	6	Tongkang	5000	713	4275	287	67	1425	10	19		
2021	MA. PANGRANGO	2620	25	Penumpang	15000	1682	1682	503	59	1922	18	31		
2021	MMP. THABONERATE	842	1	Penumpang	902	769	3327	692	15	1002	8	8		
2021	FB. WISNU XII	114	38	Tunda	10000	258	952	13	13	258	20	21		
2021	MA. INDIRA	1632	32	Kargo	4447	1382	3994	198	4	2253	10	22		
2021	RESCUE BOAT BAROMBONG	756	7	Patrol	217	120	67	100	7	100	10	11		
2021	MA. ENTEBE EXPRESS	745	13	Penumpang	1000	788	2213	1878	20	1425	5	24		
2021	BC. 3003	240	11	Patrol	100	190	1656	154	8	828	14	22		
2021	TR. APPLE 01	280	14	Tunda	1500	625	1250	64	92	625	10	13		
2022	MA. GANDHANUSANTARA20	92	4	Rede	4000	630	450	53	13	810	6	9		
2022	MMP. TELUK CENDRAWASIH II	481	26	Penumpang	2082	622	1705	426	16	154	10	10		
2022	MLM. MALAKKA	5367	6	Penumpang	12543	503	819	1093	112	503	7	53		
2022	MA. GANDHANUSANTARA20	92	4	Rede	4000	650	450	53	13	810	6	9		
2022	MA. GANDHANUSANTARA19	92	4	Rede	4000	650	450	53	13	810	6	7		
2022	MA. SATYACENALI	2156	34	Penumpang	1594	1504	2866	1567	34	2010	15	20		
2022	MA. GANDHANUSANTARA14	92	4	Rede	4000	650	450	53	13	810	6	7		
2022	GSD. QUEEN VICTORIAK	257	9	Dredger	2574	427	1200	278	27	853	10	11		
2022	AB. INALILY	312	8	Tunda	1000	460	690	423	47	460	10	27		
2022	GANDHANUSANTARA16	92	4	Rede	4000	650	450	53	13	810	6	26		

No	Year of Docking Record	Ship's Name	DWT(GT) (Ton)	Age (Years)	Type	Plate Work (Kg)	Sand Blasting/Sweep Blasting (m²)	Painting Work (m²)	Tank Cleaning (m³)	Valve Work (Ea)	Hull Cleaning (m²)	Finish Estimation (day)	Realization (day)
66	2022	KM. DHARMAENCANA1	11000	31	Penumpang	4000	865	4000	2465	418	57	1731	40
67	2022	KM. SABUK NUSANTARA67	2086	3	Penumpang	2000	1106	1376	207	29	1305	7	10
68	2022	KM. SANGJANG	2620	22	Penumpang	9500	1777	1777	601	65	1724	13	21
69	2022	KMP. KOTAMUNA	686	47	Penumpang	8000	1333	3460	841	12	1680	28	21
70	2022	ZULKARNAIN 99	3064	4	Tongkang	5000	2286	5000	6858	31	4572	15	35
71	2022	TB. LAU 2	98	30	Tunda	300	412	824	96	115	412	5	10
72	2022	TB. BSA99	236	16	Tunda	2000	360	439	277	10	681	26	26
73	2022	TB. TEWAN SEANTI III	225	7	Tunda	3269	349	1045	187	4	640	12	14
74	2022	KMP. MADANI NUSANTARA	4300	41	Penumpang	3500	1736	3472	1265	13	1438	15	14
75	2022	KMP. PULAU RUBIAH	485	24	Penumpang	2378	532	1500	173	19	654	10	19
76	2022	KMP. SINAR HARAPAN V	1234	34	Kargo	4368	665	1329	326	42	1329	10	15
77	2022	KM. LUCKY STAR	208	32	Kargo	10000	1857	5570	475	5	3481	10	17
78	2022	GSD. QUEEN VICTORIA X	257	9	Dredger	2574	427	1200	278	27	853	7	17
79	2022	KM. SEESEA1	479	6	Penumpang	3000	466	1074	1074	7	466	7	8
80	2022	KMP. BAI RO	540	25	Penumpang	3788	770	2538	1932	17	1100	12	22
81	2022	KLM. INDO SIREN	149	9	Layar	1000	346	978	187	18	692	15	24
82	2022	KMP. MERAK	692	30	Penumpang	3500	2790	3500	654	13	1216	56	56
83	2022	TB. BMA-01	219	27	Tunda	2000	341	964	372	7	623	7	9
84	2022	KM. SIRMAMU	6040	30	Penumpang	10000	2896	2913	1331	60	2342	14	37
85	2022	KM. SABUK NUSANTARA84	2097	3	Penumpang	3000	1212	1789	7	24	1263	13	13
86	2022	KM. GANDHANUSANTARA12	92	4	Rode	4000	650	450	53	13	810	6	9
87	2022	KM. GANDHANUSANTARA09	92	4	Rode	4000	650	450	53	13	810	6	8
88	2022	BG. MARINE POWER 3306	656	29	Tongkang	10000	3616	10787	189	88	3285	15	40
89	2022	KLM. SEQUOIA	173	5	Penumpang	2000	835	203	942	44	406	5	9
90	2022	LCT. ABIDZAHOT4	488	6	Kargo	5143	967	2653	124	15	1436	10	18
91	2022	TB. MARINA 2435	222	9	Tunda	2000	358	990	54	64	274	7	26
92	2022	BG. NEPTUNE	3148	23	Tongkang	10000	678	1889	326	54	1235	20	22
93	2022	SPOB. SEMBILAN PILAR	2567	13	Tanker	1000	298	894	754	7	563	10	7
94	2022	KMP. MANDALANUSANTARA	1333	42	Penumpang	2032	1261	3551	30	54	1450	12	19
95	2022	KM. SABUK NUSANTARA78	2087	3	Penumpang	3000	1246	1888	7	31	1227	7	19
96	2022	TB. BLUE MARLIN	114	12	Tunda	1000	267	1333	139	78	533	10	17
97	2022	TB. LUPITAN PENDINGIN 1	144	14	Tunda	2500	411	1136	306	6	580	10	47
98	2022	TK. LUPITAN PERKASA	1896	12	Tongkang	1000	76	2850	54	28	950	15	28
99	2022	LCT. PEMASAPRIMA8	808	14	Kargo	3000	763	2350	315	36	1145	5	10
100	2022	KFC. JET LINER	4563	27	Penumpang	3000	852	3063	400	84	1982	14	33
101	2022	KMP. PERIDANUSANTARA	1645	47	Penumpang	9026	1566	3351	12	36	945	1327	18
102	2022	KM. SABUK NUSANTARA66	563	4	Penumpang	3000	585	1737	150	19	632	8	10
103	2022	KM. PANGRANGO	2620	25	Penumpang	15000	1682	1682	593	59	1922	20	22
104	2022	KM. BALIRO	540	25	Penumpang	3788	770	2538	120	17	1100	10	20
105	2022	TK. LUPITAN PERKASA (BG. RSANUSAWALUYA 2)	3765	28	Tongkang	5000	782	4692	36	24	1564	15	25
106	2022	KAPAL LATHI 2 SULTAN HASANUDDIN	1257	4	Patrol	100	874	2622	88	5	1748	10	13
107	2022	ASD. TRANSKOKENRI	435	4	Tunda	5500	962	2946	640	52	962	13	30
108	2022	KM. WALIS	2620	22	Penumpang	13000	1773	5352	456	59	1438	14	22
109	2022	KMP. TAKABONEBATE	842	5	Penumpang	3491	572	1158	1045	17	732	15	7
110	2022	BG. BILL 10	2144	9	Tongkang	55000	2027	12758	215	49	4253	25	60
111	2022	TB. BINAOCEAN 10	144	16	Tunda	1000	258	767	28	6	479	7	9
112	2022	TK. MITCHELL-III	2047	4	Tongkang	500	906	2717	97	95	1676	10	28
113	2022	KLM. SOTIS	57	4	Layar	500	407	1220	42	11	813	15	22
114	2022	KLM. ANUGERAH JAYA021	159	27	Kargo	1862	752	439	9	9	501	10	15
115	2022	KMP. RAJAWALI NUSANTARA	815	6	Tunda	4934	1418	3371	60	30	1025	12	15
116	2022	KMP. SULTAN MURMUH 2	663	2	Penumpang	2547	724	2478	276	4	1138	8	6
117	2022	KFC. JET LINER	4563	26	Penumpang	3000	852	3063	400	84	1982	7	9
118	2022	KM. BINTAN UTAMA	982	12	Kargo	10000	832	3625	2421	31	2219	10	36
119	2022	SPOB. BAHTERMAU PERIDANA	943	12	Tanker	1000	1190	3445	4195	4	2265	10	55
120	2022	KM. MULTI ALFA	2963	14	Kargo	1000	2141	5733	376	5	3592	15	18
121	2022	KM. SABUK NUSANTARA84	2097	4	Penumpang	4000	1090	4000	3340	77	1480	7	13
122	2022	KM. SABUK NUSANTARA85	2097	4	Penumpang	4000	1090	4000	3340	77	1480	7	9
123	2022	BG. STARMARINE 2561	2222	19	Tongkang	12000	520	676	142	63	520	25	32
124	2023	BG. MOMAH-III	3145	14	Tongkang	12000	1251	5004	365	37	2502	7	6
125	2023	KM. SHIRO	1454	38	Kargo	4000	1737	5210	619	5	2988	10	21
126	2023	KM. DHARMAENCANA1	1100	31	Penumpang	8328	920	2519	526	37	1731	7	15
127	2023	KM. QUEEN SOYA	2983	31	Penumpang	8839	289	867	6	12	1598	10	15
128	2023	KM. TATAMAU	6041	31	Penumpang	17000	1874	1968	1041	58	2325	10	15
129	2023	MB. PSC-III	14	6	Tamlat	2625	157	865	45	5	436	7	17

130	2023	FC. MAKASSAR	285	12	Penumpang	4000	136	459	8	88	286	5	36
131	2023	KMP. BALUBO	540	25	Penumpang	5571	801	2175	120	17	1100	10	16
132	2023	KM. GANDHANUSANTARA19	92	4	Rede	4000	650	450	53	13	810	7	6
133	2023	KMP. RADULAUT	937	15	Penumpang	2000	902	2575	1754	5	1673	10	26
134	2023	KUDANIL EXPLORER	933	8	Peisir	8000	700	800	338	3	1822	7	25
135	2023	KM. GANDHANUSANTARA16	92	4	Rede	2000	360	450	40	13	405	7	6
136	2023	KM. SANGANG	2620	22	Penumpang	15000	1670	1670	600	64	1105	12	12
137	2023	KLM. MALAYERA	5367	6	Penumpang	8765	944	816	62	32	944	7	63
138	2023	MT. BIRA-1	321	30	Tanker	4500	540	1621	1769	6	1080	15	6
139	2023	MT. BIRA	1348	29	Tanker	1000	534	1692	1567	6	1068	15	9
140	2023	MT. KAPOPOSANG-1	369	30	Tanker	4500	428	1360	1867	6	1285	10	15
141	2023	TG. BINTANG ATENIA2409	400	35	Tunda	5000	467	2601	215	6	934	10	26
142	2023	KT. ANOMAN IX	361	25	Tunda	3150	838	2354	242	31	1085	30	45
143	2023	KM. TRISTAN PERASA	1169	14	Kargo	7000	1437	4311	159	23	2727	15	14
144	2023	CSD. PERINTIS	2020	43	Dredger	7000	668	1983	743	42	1194	15	20
145	2023	MT. ANDREA2	571	35	Tanker	3000	772	2422	2889	6	1544	10	7
146	2023	KM. GANDHANUSANTARA03	92	6	Rede	1000	360	450	40	13	405	8	21
147	2023	KLM. PERMAJANI SETIA	376	31	Kargo	3275	431	1725	412	7	862	15	20
148	2023	CS. PACIFIC GUARDIAN	3531	34	Invasi dari Laut	4500	3580	9798	142	10	2638	21	28
149	2023	KLM. ATASTA (NAWA)	248	12	Layar	1000	340	1360	273	22	680	8	8
150	2023	KMP. PERMATANUSANTARA	1373	55	Penumpang	2500	1045	2646	20	30	1245	15	48
151	2023	AB. INALILY	257	5	Tunda	1000	281	743	487	136	432	10	46
152	2023	TB. SEMARUJAPULUH LIMA	214	5	Tunda	2000	307	1691	73	102	615	10	10
153	2023	TB. SEMARUJAPULUH ENAM	214	5	Tunda	2000	307	1691	242	4	615	10	13
154	2023	KM. SABUKUSANTARA78	2087	5	Penumpang	3000	1212	1789	234	24	1283	10	19
155	2023	KMP. BINTOHARU	1224	20	Penumpang	4000	848	2400	732	19	479	13	18
156	2023	KM. MILIS	2620	24	Penumpang	7943	543	4887	77	73	543	16	17
157	2023	BG. G81301	1150	27	Tongkang	5000	2128	6384	68	81	3170	7	17
158	2023	BG. CAPRICORN79	3140	10	Tongkang	50000	1722	5167	248	59	1722	20	29
159	2023	KM. BIMASAKTI3	23	2	Peisir	1000	121	227	769	28	151	7	23
160	2023	KFC. JETLINER	4663	28	Penumpang	3000	852	3663	400	84	1982	16	12
161	2023	TB. T-18	431	23	Tunda	1000	261	782	51	56	468	6	6
162	2023	BG. CAPRICORN77	3140	10	Tongkang	50000	1722	5167	124	72	1722	15	19
163	2023	TB. 4618	71	17	Tunda	2135	181	542	1000	23	333	6	6
164	2023	BG. INTANJELANAVI	3241	6	Tongkang	10000	2822	8587	134	28	5380	15	7
165	2023	MB. TRANSICPATIN8	29	5	Tambat	500	88	302	72	4	176	5	12
166	2023	KLM. JELAAHI LAUT	1789	24	Penumpang	7671	229	659	45	5	229	6	9
167	2023	KT. TELUKADANG1	207	9	Tunda	3500	781	2713	173	35	891	30	35
168	2023	BG. STARMAINE2561	2222	16	Tongkang	12000	520	676	312	66	520	25	30

Lampiran 6 Contoh Dokumen *Repair List* Kapal Milik PT. IKI

REPAIR LIST					
FRD KM.SABUK NUSANTARA 85 TAHUN 2023					
SHIP PARTICULAR			KLASIFIKASI		
Nama	: KM. Sabuk Nusantara 85		Length Over All (LOA)	:	68,50
Tahun	: 2018		Length Between Perpendicular (LBP)	:	63,00
Tipe	: Perintis 2000 GT		Breadth Moulded (BM)	:	14,00
Status	: SS-I		Draft Moulded (DM)	:	2,9
			Dead Weight Tonnage (DWT)	:	1570
			Gross Registered Tonnage (GRT)	:	2097
			Netto Registered Tonnage (NRT)	:	634
			Waktu pelaksanaan	:	12
NO	NAMA PESAWAT/ITEM	URAIAN PEKERJAAN	QTY	SAT	Total
1.0.0.	Perlimbungan				
1.1.0.	Pembersihan Lambung				
1.1.1	Dari deep load line (DLL) ke keel, termasuk daun kemudi	Dibersihkan dari lumut laut dan tiram dengan disemprot waterjet air tawar 100 %	980	m ²	1,834
		Tiram dan lumut disekrap 50%	490	m ²	1,254
1.1.2	Dari deep load line (DLL) ke light load line (LLL)	Sweepblasting 100 %	98	m ²	0,640
1.1.3	Dari light load line (LLL) ke Keel termasuk daun kemudi	Sweepblasting 100 %	882	m ²	5,760
1.1.4	TOP Side Area Cream	Sweepblasting pilih-pilih	100	m ²	0,653
1.1.5	Lorong Bow thruster termasuk sangkar kiri&kanan	Disekrap, diwaterjet air tawar 100%, termasuk B/P sangkar kiri&kanan, bersihkan dan di sweepblast	10	m ²	0,110
1.2.0	Pengecatan Lambung di Bawah Garis Air				
1.2.1	Dari light load line (LLL) ke Keel termasuk daun kemudi	Dicat 1 (satu) x AC	882	m ²	1,188
		Dicat 1 (satu) x Sealer	882	m ²	1,188
		Dicat 1 (satu) x AF	882	m ²	1,188
1.2.2	Dari deep load line (DLL) ke light load line (LLL)	Dicat 1 (satu) x AC	98	m ²	0,132
		Dicat 1 (satu) x Sealer	98	m ²	0,132
		Dicat 1 (satu) kali Bottop Green	98	m ²	0,132
1.2.3	TOP Side Area Cream	Dicat 1 (satu) x AC	100	m ²	0,135
		Dicat 1 (satu) x Cream	270	m ²	0,364
1.2.4	Lorong Bow thruster termasuk sangkar kiri&kanan	Dicat 1 (satu) x AC	10	m ²	0,013
		Dicat 1 (satu) x Sealer	10	m ²	0,013
		Dicat 1 (satu) x AF	10	m ²	0,013
1.3.0.	Nama Kapal,Port Register,Tanda Lambung Timbul Dan Tanda Sarat				
1.3.1	Tanda lambung kiri/kanan dan angka-angka tanda sarat kiri/kanan, depan dan belakang termasuk Tug Area dan Nama Kapal	Dicat ulang (dock supply)	1	shipset	1,119
1.3.2	- Tulisan TOL Laut & Perintis - Peta Indonesia Buritan - Garis Layer Hijau - Pisang-Pisang	Dicat ulang (dock supply)	1	shipset	2,020
1.4.0.	Kotak-kotak Masukan dan Katup-katup Isap Air Laut				
1.4.1	Kotak-Kotak Masukan air Laut : - Bawah Kiri : 100 x 124 x 154 cm - Atas kiri : 102 x 127 x 195 cm - Atas Kanan : 102 x 127 x 145 cm - Emergency : 87 x 70 x 125 cm	Kotak-kotak masukan air laut dibuka saringan-saringannya (grating) dan bagian dalam kotak dibersihkan kemudian dicat dengan 1 (satu) x AC dan 1 (satu) x AF (dock supply)	4	buah	0,844
1.4.2	Katup-katup isap air laut : Gate Valve Uk. Ø 10"	B/P Katup-katup isap air laut, dibersihkan, piringan dan dudukan katup disekur di tempat untuk pemeriksaan class,dicat meni termasuk ganti baru baut mur dan packing (dock supply)	3	Bh	1,186
1.5.0.	Katup-katup Buang pada Lambung Kapal				
1.5.1.	Katup-katup buang pada lambung kapal	B/P Katup-katup buang air laut, dibersihkan, piringan dan dudukan katup disekur di tempat untuk pemeriksaan class, dicat meni termasuk ganti baru baut mur dan packing (dock supply) tipe: globe valve			-
	Valve O/B Mesin Induk 3,5" 5K 80		2	unit	0,143
	Valve O/B Mesin Bantu 3,5" 5K 65		4	unit	0,233
	Valve O/B Gs Pump 3" 5K 65		1	unit	0,058
	Valve O/B Ballas Pump 3" 5K 65		2	unit	0,117
	Valve O/B Bilge Pump 3" 5K 65		1	unit	0,058
	Valve O/B Ae 3" 5K 65		1	unit	0,058
	Valve O/B Sewage 4,5" 5K 100		2	unit	0,143
	Valve O/B Sewage 1,5" 5K 25		1	unit	0,043
	Valve O/B Scupper Valve 3,5" 5K 80		2	unit	0,143
	Valve O/B Jangkar 1,5" 5K 32		2	unit	0,085
	Valve O/B Sprinkle 3" 5K 65		1	unit	0,058
	Valve Isap M/E 3,5" 5K 80		2	unit	0,143
	Valve Isap Mesin Bantu 3,5" 5K 65		4	unit	0,233

NO	NAMA PESAWAT/ITEM	URAIAN PEKERJAAN	QTY	SAT	Total
	Valve Isap Ballas 3" 5K 65		1	unit	0,058
	Valve Isap Gs Pump 3" 5K 65		1	unit	0,058
	Valve Isap Sewage 4,5" 5K 100		1	unit	0,071
	Valve Isap Sprinkle 3" 5K 65		1	unit	0,058
	Valve Isap Ows 1" 5K 20		1	unit	0,043
	Valve Isap Fw Generator 1,5" 5K 25		1	unit	0,043
	Valve Isap Bilges 2,5" 5K 65		1	unit	0,058
	Valve Isap Sw Service 3,5" 5K 80		1	unit	0,071
	Valve Outlet Hydrant D-10 K		12	unit	0,856
1.6.0.	Jangkar Haluan Kiri/Kanan dan Rantai-rantainya				-
1.6.1.	Jangkar haluan kiri/kanan dan rantai-rantainya <u>Catatan</u> Berat jangkar : 1440 kg Tipe : - Panjang kiri : 7 segel Panjang kanan : 8 segel Ø asli rantai jangkar : 34 mm	Jangkar dan rantai kiri/kanan diturunkan dan diuraikan di lantai dock, dibersihkan, diwaterjet air tawar, diketoki, dan dikalibrasi (timbang jangkar & ukur rantai jangkar) untuk pemeriksaan class, termasuk D-shackles & kenter shackles dirawat, swivel dilas ulang dan dilancarkan, kemudian dicat bitumastik (dock supply), tanda segel dicat merah dan putih (dock supply), dibuatkan laporan rangkap 6	2	set	1,259
1.7.0.	Bak Rantai Jangkar Kiri / Kanan				-
1.7.1.	Bak rantai jangkar kiri/kanan <u>Ukuran</u> : kiri : 1,8 x 1,0 x 1,8 meter kanan : 1,8 x 1,0 x 1,8 meter	Dibersihkan bak rantai kiri/kanan termasuk bongkar/pasang alas lantai, dicat bitumastik (dock supply).	2	set	0,835
1.8.0.	Aluminium Anodes Hull Protection				-
1.8.1.	Aluminium anodes pada pelat lambung kiri/kanan	B/P ganti baru aluminium pada pelat lambung kiri/kanan dan dipasang baru sesuai petunjuk surveyor (Dock supply), Lambung haluan : 2 x 6 bh @ 7,2 kg Lambung haluan : 2 x 5 bh @ 7,2 kg Lambung tengah : 2 x 3 bh @ 7,2 kg Lambung buritan : 2 x 4 bh @ 7,2 kg Daun kemudi : 2 x 6 bh @ 5,5 kg Kotak isap air laut : 4 x 1 bh @ 1,2 kg	12 10 6 8 12 4	Buah Buah Buah Buah Buah Buah	- 1,115 0,929 0,557 0,743 0,808 0,119
1.9.0.	Pekerjaan Daun Kemudi				-
1.9.1.	Ruang gerak pena daun kemudi kiri/kanan Crop Plat atas : - Plat bawah : -	B/P ukur ruang gerak bush tongkat dan bush pintle kemudi, kemudian dibuatkan laporan rangkap 6	2	unit	0,512
1.9.2.	Tongkat kemudi kiri/kanan	Tongkat kemudi, diturunkan, cek bushing & di NDT untuk pemeriksaan class	2	unit	3,005
1.9.3.	Ganti baru remes packing kemudi	Ganti baru remes packing (dock supply)	2	Set	0,943
1.10.0.	Pekerjaan Baling-baling, Poros Baling-baling dan Tabung Pikul				-
1.10.1.	Ruang gerak poros baling-baling kiri/kanan Asistensi B/P skerm	Bongkar/pasang skerm seal poros, dan ukur ruang gerak poros baling-baling ki/ka sebelum dan sesudah dilepas serta buat laporan rangkap 6	2	unit	0,512
1.10.2.	Poros baling-baling kanan/kiri Ø165mm X 3,35Meter	Poros Baling Baling Kanan/Kiri dilepas diturunkan di lantai dock, kemudian dibawa kebengkel untuk proses pengecekan kelurusan di bangku bubut, dilaksanakan MPI pada ujung konis dan dibuatkan laporan rangkap 6	2	unit	4,729
1.10.3.	Pekerjaan baling-baling <u>kiri atau Kanan</u> uk. Ø 1800 mm x 4 daun tetap / fixed (ditentukan setelah survey)	B/P baling-baling kanan & kiri, jika terdapat fitting/kavitasi dan bengkok agar diperbaiki, di NDT, di balancing & dipolish serta di Contact fit sebelum dipasang kembali serta dibuatkan laporan	2	unit	2,976
1.10.4.	Ganti baru reimes packing poros	Ganti baru reimes packing (dock supply)	2	Set	0,943
1.10.5.	Pekerjaan baling-baling Bow Thruster	Baling - baling ki/ka, dibersihkan, dipoles dan diolesi minyak ikan di tempat	1	unit	0,244
1.11.0.	Pekerjaan Pelat				-
1.11.1.	Ultrasonic test (Item SS) Plat lunas & alas, Plat lambung, plat daun kemudi, plat skeg, plat BT trunk, plat sekat2 dalam tanki, Pelat geladak utama dan yang meliputi item SS	Melaksanakan ultrasonic test sesuai petunjuk surveyor BKI & OS	350	titik	2,356
1.11.2.		Dibuatkan Laporan 6 Rangkap	1	Set	0,337
1.11.3.	Pelat Lambung	Replating plat yang melewati batas toleransi sesuai hasil UT	2000	Kg	9,156
1.11.3.	Pelat Tanktop	Replating plat yang melewati batas toleransi sesuai hasil UT	2000	Kg	9,964
1.12.0	Pekerjaan Tanki-tanki				-
1.12.1.	Tanki Air Tawar a. Manhole b. Bottom plugs c. Tanki	B/P manhole termasuk ganti baru packing dan mur baut (dock supply) Buka/pasang prop dasar dan tutup semen Sisi dalam tanki dibersihkan	12 6 227,44	bh bh m³	- 0,759 0,162 0,746

NO	NAMA PESAWAT/ITEM	URAIAN PEKERJAAN	QTY	SAT	Total
	Jenis Caps.	Tanki disemen ulang 20%	45	m ³	0,148
	Tank. 1 P&S 39.941 m3 x 2	Buang limbah lumpur	1	m ³	0,044
	Tank. 2 P&S 53.433 m3 x 2	Cleaning Pemberian Dry Ice	30	kg	0,242
	Tank. 3 P&S 20.348 m3 x 2				-
1.12.2	Tanki Air Ballast				-
	a. Manhole	B/P manhole termasuk ganti baru packing dan mur baut (dock supply)	10	bh	0,633
	b. Bottom plugs	Buka/pasang prop dasar	5	bh	0,135
	c. Tanki	Sisi dalam tanki dibersihkan	137,865	m ³	0,551
	Jenis Caps.	Buang limbah lumpur	2	m ³	0,088
	Tank. FPT C 37.667 m3				-
	Tank. 1 P&S 7.451 m3 x 2				-
	Tank. 2 P&S 42.648 m3 x 2				-
1.12.3	Tanki Bahan Bakar				-
	a. Manhole	B/P manhole termasuk ganti baru packing dan mur baut (dock supply)	4	bh	0,253
	b. Bottom plugs	Buka/pasang prop dasar	2	bh	0,054
	c. Tanki	Sisi dalam tanki dibersihkan	83,56	m ³	1,013
	Jenis Caps.	Buang limbah lumpur	1	m ³	0,135
	Tank. FOT 1 Ps 37.45 m3 x 1				-
	Tank. FOT 2 Sb 46.110 m3 x 1				-
1.13.0.	Pelayanan Umum				-
1.13.1.	a. Kapal naik/turun dok	Kapal naik/turun dock (termasuk dua hari)	1	kali	2,887
	b. Kapal naik diatas block dock	Kapal naik di atas block dock	9	hari	2,704
	c. Kapal sandar di kade	Kapal Sandar di kade	1	hari	0,123
1.13.2.	Pelayanan kapal gandeng	Pelayanan kapal gandeng, saat kapal berangkat dari perairan pelabuhan ke perairan dock, setelah selesai perbaikan/ perawatan dari perairan dock ke perairan pelabuhan termasuk kapal masuk dan keluar dock	1	set	5,386
1.13.3.	Pelayanan tali temali	Sediakan tenaga galangan saat melayani tali temali kapal, selama kapal naik / turun dock	1	Set	0,303
1.13.4.	Listrik galangan 150A / 380V/ 50Hz /AC 3 phase	Hubungkan dan lepaskan aliran listrik dari darat, termasuk ulur kabel dari kapal ke darat	1	kali	0,048
		Penggunaan listrik selama berada di atas dock.	12	hari	3,479
1.13.5.	Air tawar	Hubungkan dan lepaskan selang air tawar	1	kali	0,022
		Supply air tawar ke atas kapal setelah menjalani docking	75	ton	1,515
1.13.6.	Penjaga Pemadam Kebakaran	Sediakan 2 orang penjaga pemadam kebakaran pada setiap titik pekerjaan panas lengkap dengan alat pemadam ringan	12	hari	0,388
1.13.7.	Penjaga Pemadam Kebakaran	Hubungkan dan lepaskan saluran air pemadam dari darat ke atas kapal	1	Ls	0,027
		Sediakan selang pemadam selama kapal di galangan	12	Hari	0,194
1.13.8.	Sampah	Bersihkan sampah dan kotoran ABK dan kamar mesin serta buang ke darat	3	m ³	0,081
1.14.0	LAIN-LAIN				-
1.14.1	Dampira lambung				-
		- Ganti baru ban fuso untuk dampira	8	Bh	0,592
		- Ganti baru rantai untuk ban Uk. 500 mm	10	meter	1,111
		- Segel rantai	16	Bh	0,485
		- Ganti baru kupingan yang rusak	16	Bh	0,323
1.15.0.	SERBA-SERBI				-
1.15.1.	Tutup penutup lantai	Pasang penutup lantai karpet/vinyl dengan lembaran plastik transparan pada gang-gang/hall/tangga dan tutup anak tangga dengan karton	1	set	2,020
	a. Plastik transparan 54" x 50 yard = 14 roll				
	b. Karton 1000 x 1500 x 2 mm = 90 lembar				
	c. Karton 800 x 800 x 2 mm = 90 lembar				
	d. Tripleks 2240 x 1220 x 2 mm = 4 lembar				
	e. Lakband = 25 roll				
1.15.2.	Deck crane & peranca	Sediakan deck crane berikut peranca tangga gantung untuk ABK pengecatan krem pada bagian haluan dan buritan	3	jam	0,141
1.15.3.	Sea trial	Melaksanakan sea trial dan compass adjusment, termasuk fumigasi	DOK & PELNI		
2.0.0.	DEK				
2.1.0.	Top Deck				
2.1.1	Kompas Adjusment	Kalibrasi magnet kompas standar			PELNI
2.1.2	Lampu navigasi	Ganti baru cover + lampu dan bracket lampu masthead no.2, fungsikan kembali hingga normal	1	Set	0,337
2.2.0.	DEK IV				

NO	NAMA PESAWAT/ITEM	URAIAN PEKERJAAN	QTY	SAT	Total
2.2.1.	M.O.B	Dibuatkan bracket penempatan alat keselamatan M.O.B dan Lifebuoy Uk. 590mm x 670mm model A type ring buoy 2.5kg sesuai arahan marine inspector	2	Set	0,673
2.3.0	DEK III				
2.3.4	Tangga gangway	B/P ganti baru baut-baut dan wire tangga gangway sebelah kanan dan kiri, lalu diberikan sertifikat wire sesuai arahan marine inspector SPB No. 27.10/109/799/2022	2	Roll	PELNI
2.3.5	Tangga gangway	Re-posisi badan tangga gangway kanan dan kiri dikarenakan badan tangga tidak presisi (tidak lurus)	2	Set	0,606
2.3.5.	Capstan jangkar haluan kanan/kiri dan buritan	B/P ganti baru kanvas rem capstan, model disesuaikan	3	Pcs	3,030
3.0.0	Bagian Permesinan				
3.1.0	Mesin Induk (YANMAR 12 AYM-WST).RPM 1900 HP 1400 KW 1030)				
3.1.1	G/O ME Kiri RH :9713,5 Hrs	FPP : 28/10/119/799/2022	1	Unit	PELNI
3.1.2	Kalibrasi Governour & OH Turbo Charge	SPB : 28/10/113/799/2022	1	Unit	PELNI
3.1.3	G/O ME Kanan RH :9707,6 Hrs	FPP : 28/10/118/799/2022	1	Unit	PELNI
3.1.4	Kalibrasi Governour & OH Turbo Charge	SPB : 28/10/112/799/2022	1	Unit	PELNI
3.2.0	Mesin Induk (YANMAR 6 AYL-WET 438 KW 1500 RPM)				
3.2.1	G/O AE No1 RH : 9.960 Hrs	FPP : 28/10/120/799/2022	1	Unit	PELNI
3.2.2	Kalibrasi Governour & OH Turbo Charge		1	Unit	PELNI
3.2.3	Cuci Generator AE No.1 720KVA 280KW		1	Unit	PELNI
3.2.4	G/O AE No.2 RH : 12.665 Hrs	FPP : 28/10/121/799/2022	1	Unit	PELNI
3.2.5	Kalibrasi Governour & OH Turbo Charge		1	Unit	PELNI
3.2.6	Cuci Generator AE No.2 720KVA 280KW		1	Unit	PELNI
3.2.7	G/O AE No.3 RH : 11071 Hrs	FPP : 28/10/122/799/2022	1	Unit	PELNI
3.2.8	Kalibrasi Governour & OH Turbo Charge		1	Unit	PELNI
3.2.9	Cuci Generator AE No.3 720KVA 280KW		1	Unit	PELNI
3.3.0	Clock Deflection ME & AE				
3.3.1	Pengukuran Clock deflection ME & AE Sebelum dan sesudah kapal naik dock serta dibuatkan laporanya		1	Unit	PELNI
3.4.0	Perawatan Pompa-pompa				
3.4.1	Perawatan pompa-pompa, ganti bearing, ganti mechanical seal & lain-lain	SPB : 20/10/123/799/2022	1	Unit	PELNI
3.5.0	Merger Test				
3.3.1	Merger test dan dibuatkan laporanya - Generator AE No.1,2&3 Harbour & Emergency - Motor BT - Electromotor pompa-pompa & kompressor		1	Unit	2,020
3.6.0	PIPA-PIPA DAN HOSE				
3.6.1	PIPA PENDINGIN AIR LAUT AE 2	PIPA SCH 40 2,5"x100cm x1batang	1	Meter	0,092
		flange : 2pcs	2	Pcs	0,035
		Elbow : 90° = 2pcs 40° = 1 pcs	3	Pcs	0,122
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
3.6.2	PIPA BALLAST TEKAN	PIPA SCH 40 2"x150cm x1batang	1,5	Meter	0,090
		flange : 2pcs	2	Pcs	0,035
		Elbow : 90° = 2pcs	2	Pcs	0,055
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
3.6.3	PIPA PENDINGIN SHAFT PROPELLER 1" STARTBOARD PANJANG 3 METER	PIPA SCH 40 1"x1,5meter x1batang	1,5	Meter	0,083
		flange : 2pcs	2	Pcs	0,035
		Elbow : 90° = 3pcs	3	Pcs	0,083
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
3.6.4	PIPA BALLAST ISAP	PIPA SCH 40 2,5"x200cm x1batang	1	Meter	0,092
		flange : 2pcs	2	Pcs	0,035
		Elbow : 90° = 1pcs 60° = 1 pcs	2	Pcs	0,055
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
3.6.5	PIPA PENDINGIN AIR LAUT AE 3	PIPA SCH 40 2,5"x100cm x1batang	1	Meter	0,092
		flange : 2pcs	2	Pcs	0,035
		Elbow : 90° = 2pcs 40° = 1 pcs	3	Pcs	0,122
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
3.6.6	PIPA BAHAN BAKAR ME	PIPA SCH 40 0,8"x4,5m x1batang	4,5	Meter	0,192
		flange : 1pcs	1	Pcs	0,017
		Packing karet 5mm : 2Pcs	2	Pcs	0,067
		Mur baut : 4 pcs	4	Pcs	0,013
TOTAL					100,000

Lampiran 7 Survei dan Wawancara terkait Proses *Dry-Docking*



Lampiran 8 Pengecekan Berkas *Docking Record* di PT. IKI

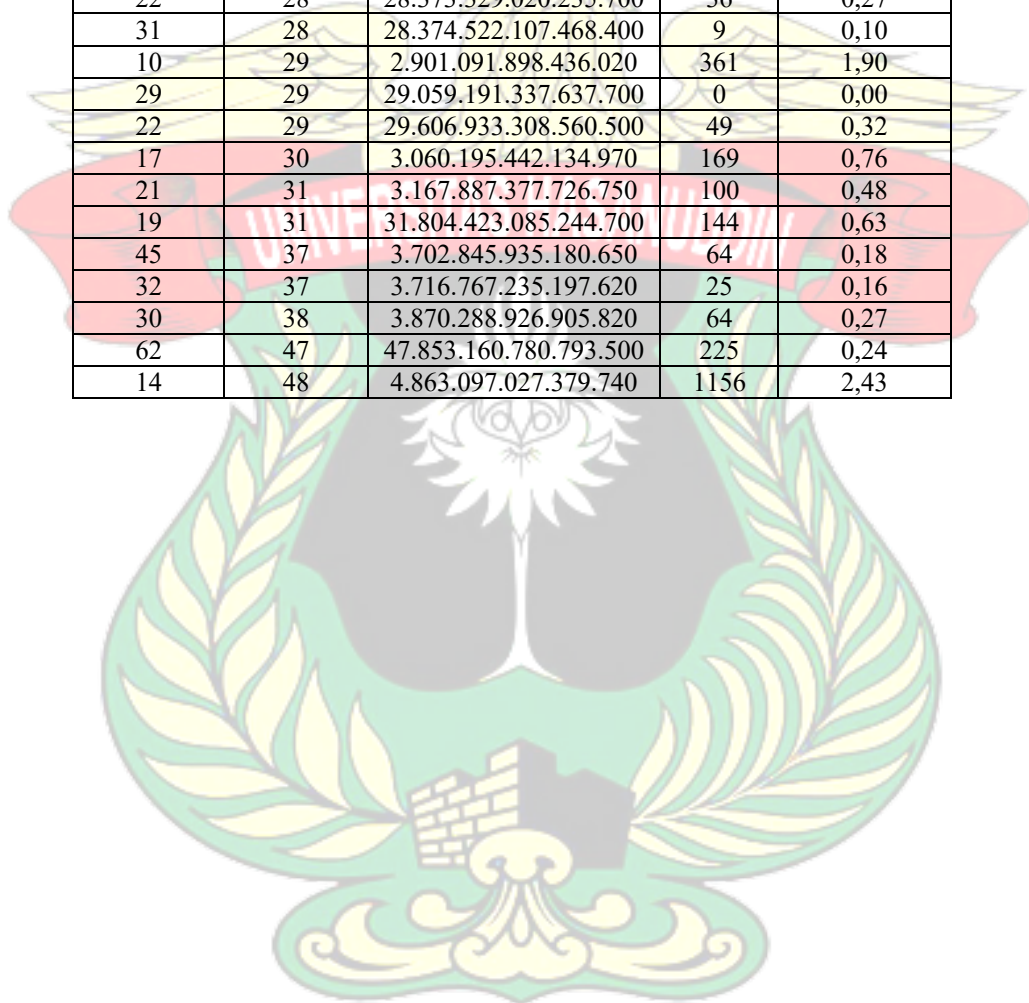


Lampiran 9 Data Model ANN pada Proses *Training* Simulasi Awal

Model ANN 10 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
6	9	9.374.814.258.570.270	9	0,50
12	9	953.752.056.864.268	9	0,25
9	11	11.733.958.449.908.100	4	0,22
7	11	11.733.958.449.908.100	16	0,57
26	11	11.733.958.449.908.100	225	0,58
8	12	12.279.454.572.652.200	16	0,50
23	12	12.613.195.693.385.500	121	0,48
16	12	1.286.045.455.231.000	16	0,25
8	13	1.372.745.963.764.880	25	0,63
26	13	13.850.863.388.517.200	169	0,50
21	13	13.892.697.014.510.400	64	0,38
9	14	14.189.044.536.385.600	25	0,56
55	14	14.229.735.646.536.800	1681	0,75
17	14	14.330.448.412.347.900	9	0,18
63	14	14.408.325.931.906.600	2401	0,78
25	14	14.531.014.626.721.300	121	0,44
36	14	14.634.014.086.005.500	484	0,61
9	14	1.490.298.842.846.130	25	0,56
9	15	15.162.827.260.577.500	36	0,67
8	15	15.162.827.260.577.500	49	0,88
9	15	15.234.284.716.052.400	36	0,67
10	15	15.262.156.137.622.400	25	0,50
6	15	15.269.910.553.065.700	81	1,50
14	15	1.527.940.578.153.790	1	0,07
17	15	15.481.183.754.429.700	4	0,12
9	15	15.528.679.855.943.600	36	0,67
10	15	15.548.550.922.040.600	25	0,50
8	15	15.562.208.002.481.800	49	0,88
47	15	1.564.503.265.304.040	1024	0,68
13	15	15.674.946.168.440.900	4	0,15
15	15	1.586.823.068.309.460	0	0,00
9	15	15.877.487.547.142.900	36	0,67
11	15	15.887.033.884.183.000	16	0,36
11	15	15.887.033.884.183.000	16	0,36
53	15	15.938.320.041.459.800	1444	0,72
15	16	16.145.453.558.020.300	1	0,07
56	16	165.304.903.472.453	1600	0,71
14	16	1.656.395.981.464.090	4	0,14
13	16	16.715.499.997.280.400	9	0,23
9	16	1.682.999.649.206.820	49	0,78
27	16	1.684.329.037.050.440	121	0,41
10	16	16.846.872.425.298.900	36	0,60
10	17	1.713.226.943.749.410	49	0,70
14	17	17.132.592.024.407.200	9	0,21
9	17	1.716.221.777.346.820	64	0,89
19	17	17.236.306.109.090.600	4	0,11
22	17	17.255.888.949.244.500	25	0,23
26	17	1.741.920.013.222.490	81	0,35
18	17	1.746.105.404.288.330	1	0,06
10	17	17.499.358.810.997.800	49	0,70

24	17	1.751.681.183.650.570	49	0,29
7	17	17.681.169.509.364.000	100	1,43
12	17	1.774.688.467.391.910	25	0,42
28	17	17.899.358.511.003.600	121	0,39
6	17	17.905.177.406.212.200	121	1,83
11	17	1.792.596.550.825.370	36	0,55
13	18	18.128.045.929.660.200	25	0,38
19	18	18.135.806.438.641.900	1	0,05
7	18	1.842.444.522.805.290	121	1,57
25	18	18.715.112.100.350.200	49	0,28
40	18	18.884.217.955.211.400	484	0,55
26	19	19.024.655.608.343.500	49	0,27
8	19	1.908.221.624.991.080	121	1,38
6	19	1.937.491.371.835.700	169	2,17
13	19	19.405.344.259.898.000	36	0,46
37	19	19.644.584.578.572.200	324	0,49
13	19	1.970.572.419.552.190	36	0,46
9	19	1.970.572.419.552.190	100	1,11
20	19	1.978.041.519.452.760	1	0,05
26	19	19.782.208.476.226.600	49	0,27
14	19	1.978.494.524.395.520	25	0,36
9	19	19.921.247.022.985.200	100	1,11
15	20	2.023.004.517.336.930	25	0,33
22	20	20.254.602.212.639.700	4	0,09
22	20	20.498.067.487.687.600	4	0,09
19	20	2.061.851.922.224.920	1	0,05
6	20	20.664.907.006.603.600	196	2,33
15	20	20.781.842.427.857.600	25	0,33
12	20	2.081.631.629.919.630	64	0,67
22	20	20.877.146.179.053.400	4	0,09
12	20	20.922.401.643.553.300	64	0,67
17	21	21.020.353.799.099.200	16	0,24
28	21	21.093.954.735.671.500	49	0,25
48	21	21.096.205.085.987.500	729	0,56
36	21	21.119.815.317.450.700	225	0,42
18	21	2.118.584.781.684.470	9	0,17
9	21	21.655.783.989.194.900	144	1,33
20	22	22.123.705.421.051.700	4	0,10
20	22	22.190.316.283.107.000	4	0,10
18	22	2.231.369.684.137.000	16	0,22
60	22	223.790.662.945.907	1444	0,63
24	22	22.545.819.635.459.200	4	0,08
10	22	2.255.015.061.611.060	144	1,20
10	22	22.679.048.514.396.200	144	1,20
16	22	227.464.156.797.019	36	0,38
15	22	22.870.154.520.578.900	49	0,47
35	23	23.219.625.134.384.400	144	0,34
13	23	23.279.414.892.400.800	100	0,77
30	23	23.374.601.909.020.100	49	0,23
17	23	23.388.421.181.847.800	36	0,35
9	23	23.555.010.592.662.500	196	1,56
7	23	23.611.078.252.654.000	256	2,29
14	23	239.038.271.882.671	81	0,64
15	24	2.410.709.682.978.870	81	0,60
17	24	24.147.524.747.633.400	49	0,41

19	24	24.159.201.782.598.200	25	0,26
11	24	2.441.276.481.572.790	169	1,18
10	24	24.500.553.294.860.300	196	1,40
46	24	2.470.901.861.535.490	484	0,48
19	24	24.898.866.738.069.200	25	0,26
11	24	24.930.346.418.809.500	169	1,18
22	25	2.523.313.657.421.380	9	0,14
20	25	256.931.856.776.967	25	0,25
14	25	2.599.421.167.771.890	121	0,79
33	26	2.608.203.437.512.980	49	0,21
30	26	2.686.336.146.569.720	16	0,13
12	27	27.296.740.362.290.000	225	1,25
24	27	27.347.735.712.123.600	9	0,13
21	27	27.888.659.877.193.900	36	0,29
7	27	27.946.838.652.900.300	400	2,86
22	28	28.373.329.020.235.700	36	0,27
31	28	28.374.522.107.468.400	9	0,10
10	29	2.901.091.898.436.020	361	1,90
29	29	29.059.191.337.637.700	0	0,00
22	29	29.606.933.308.560.500	49	0,32
17	30	3.060.195.442.134.970	169	0,76
21	31	3.167.887.377.726.750	100	0,48
19	31	31.804.423.085.244.700	144	0,63
45	37	3.702.845.935.180.650	64	0,18
32	37	3.716.767.235.197.620	25	0,16
30	38	3.870.288.926.905.820	64	0,27
62	47	47.853.160.780.793.500	225	0,24
14	48	4.863.097.027.379.740	1156	2,43



Model ANN 9 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
21	2	2.725.122.872.160.930	361	0,90
63	6	64.112.427.891.685.100	3249	0,90
6	7	7.560.526.979.580.790	1	0,17
9	7	7.817.821.545.421.440	4	0,22
55	8	82.289.130.474.397	2209	0,85
25	9	9.212.134.168.030.890	256	0,64
13	10	10.036.891.358.702.000	9	0,23
26	11	11.687.072.601.505.400	225	0,58
8	12	12.054.365.364.824.900	16	0,50
15	12	12.230.506.914.096.400	9	0,20
6	12	12.411.501.060.679.800	36	1,00
15	12	12.560.759.840.370.900	9	0,20
6	12	12.876.209.885.697.700	36	1,00
17	12	12.917.579.201.552.300	25	0,29
46	13	13.027.147.454.720.100	1089	0,72
8	13	13.044.604.345.987.500	25	0,63
10	13	13.095.455.459.359.100	9	0,30
26	13	13.106.112.465.567.400	169	0,50
36	13	13.514.920.342.925.000	529	0,64
10	13	13.598.253.615.048.800	9	0,30
28	13	13.736.456.568.956.700	225	0,54
8	13	13.902.561.959.023.400	25	0,63
24	14	14.004.533.071.696.600	100	0,42
48	14	14.063.904.858.513.700	1156	0,71
16	14	14.355.899.988.063.300	4	0,13
9	14	14.783.949.559.359.200	25	0,56
12	15	15.140.870.013.125.100	9	0,25
12	15	15.474.734.115.222.200	9	0,25
7	15	15.550.110.081.861.900	64	1,14
14	15	15.624.164.203.464.800	1	0,07
9	15	15.787.768.301.616.300	36	0,67
14	15	15.844.153.559.866.300	1	0,07
9	15	15.852.553.486.377.300	36	0,67
8	15	15.852.553.486.377.300	49	0,88
15	15	15.918.979.126.403.100	0	0,00
11	16	16.221.300.847.005.000	25	0,45
11	16	16.221.300.847.005.000	25	0,45
9	16	1.639.584.904.634.510	49	0,78
23	16	1.652.596.486.013.080	49	0,30
7	16	1.663.217.989.840.270	81	1,29
13	16	16.709.105.379.020.300	9	0,23
9	16	16.709.105.379.020.300	49	0,78
9	16	16.745.351.338.906.600	49	0,78
9	17	17.043.939.500.933.900	64	0,89
9	17	17.271.649.773.526.000	64	0,89
7	17	17.271.649.773.526.000	100	1,43
26	17	17.271.649.773.526.000	81	0,35
22	17	1.729.494.450.500.440	25	0,23
9	17	1.739.849.717.314.080	64	0,89
22	17	17.455.687.155.357.700	25	0,23
9	17	177.441.431.409.413	64	0,89
8	17	17.935.943.897.450.500	81	1,13
53	18	18.151.883.753.963.600	1225	0,66

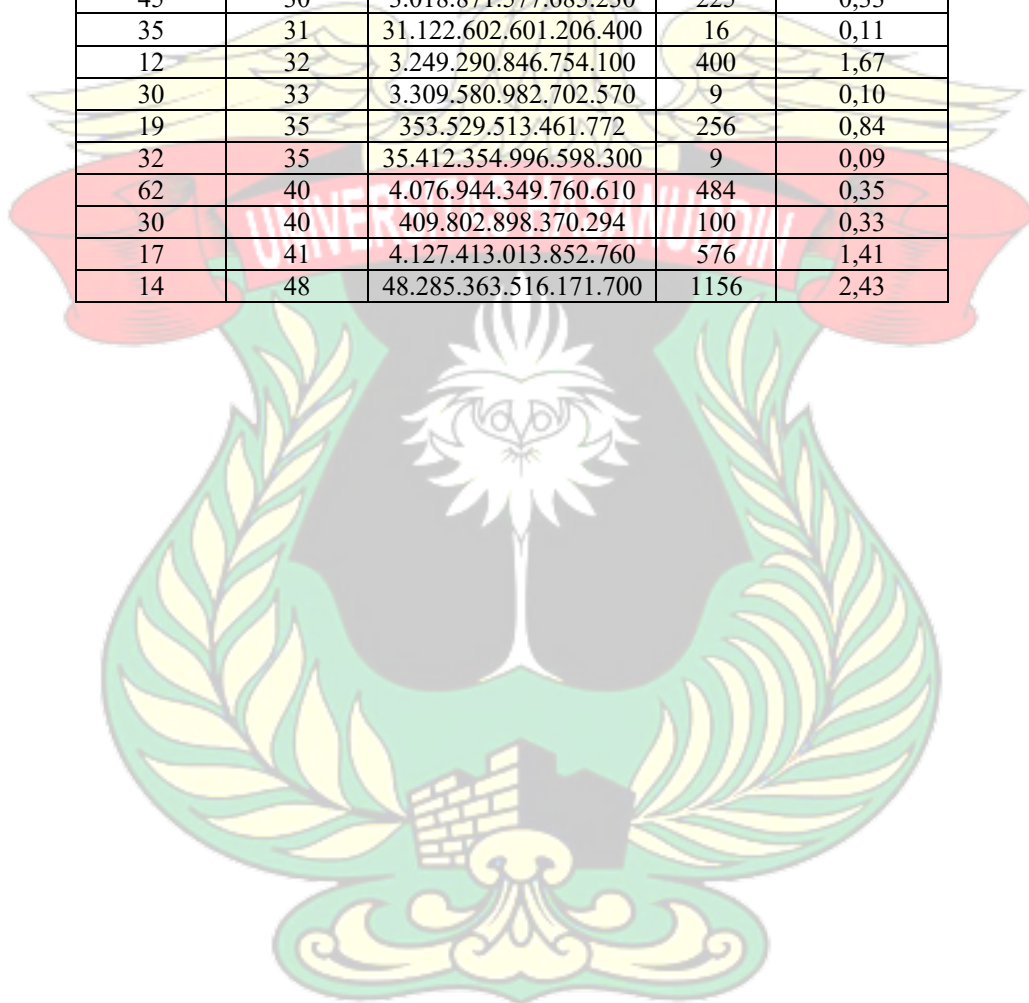
12	18	18.201.607.068.973.200	36	0,50
16	18	183.344.308.285.982	4	0,13
22	18	18.406.995.527.203.200	16	0,18
15	18	18.683.909.579.595.000	9	0,20
22	18	1.875.523.495.625.810	16	0,18
26	18	18.825.920.557.908.800	64	0,31
19	18	18.973.526.573.030.600	1	0,05
10	18	18.975.756.655.001.800	64	0,80
36	18	18.989.990.442.312.700	324	0,50
13	19	190.180.563.926.974	36	0,46
10	19	19.108.677.993.562.800	81	0,90
47	19	1.936.503.814.499.780	784	0,60
19	19	19.388.899.817.333.300	0	0,00
17	19	1.960.977.000.476.730	4	0,12
11	19	197.449.958.123.929	64	0,73
12	19	1.980.564.181.398.300	49	0,58
20	19	1.981.412.006.920.300	1	0,05
9	19	1.986.145.362.863.460	100	1,11
6	20	200.184.463.031.532	196	2,33
27	20	20.101.063.817.127.100	49	0,26
10	20	20.222.009.962.060.800	100	1,00
26	20	20.325.739.088.519.000	36	0,23
14	20	20.443.157.981.976.300	36	0,43
13	20	20.529.131.924.266.700	49	0,54
14	20	20.546.103.015.400.200	36	0,43
11	20	20.633.244.945.205.700	81	0,82
10	20	20.676.067.695.018.000	100	1,00
22	20	20.768.024.665.002.600	4	0,09
10	20	2.091.021.641.275.770	100	1,00
56	21	2.112.871.097.065.300	1225	0,63
13	21	2.138.670.200.974.470	64	0,62
9	21	21.828.636.704.700.600	144	1,33
15	22	22.208.560.895.151.800	49	0,47
60	22	22.292.904.912.444.200	1444	0,63
7	22	2.229.735.672.260.030	225	2,14
18	22	2.241.959.535.094.050	16	0,22
19	22	22.948.452.054.820.500	9	0,16
25	23	23.222.385.322.919.500	4	0,08
14	23	23.266.285.703.292.500	81	0,64
15	23	2.341.647.109.279.420	64	0,53
19	23	23.443.021.390.588.300	16	0,21
20	23	2.355.398.314.624.220	9	0,15
18	23	23.763.209.168.903.400	25	0,28
17	24	2.408.887.143.210.410	49	0,41
17	24	24.121.256.192.347.700	49	0,41
6	24	2.416.523.789.292.580	324	3,00
13	24	24.289.845.286.022.200	121	0,85
40	24	24.391.871.748.209.500	256	0,40
10	24	24.699.349.630.035.600	196	1,40
17	25	25.032.009.868.298.700	64	0,47
19	25	2.504.478.371.184.300	36	0,32
37	25	25.335.072.015.346.500	144	0,32
18	25	25.389.673.680.264.900	49	0,39
30	25	25.455.053.591.930.100	25	0,17
20	25	25.495.402.622.197.500	25	0,25

11	25	2.564.096.794.509.180	196	1,27
14	25	25.769.719.749.524.800	121	0,79
31	25	25.961.005.422.386.800	36	0,19
28	26	2.617.673.846.835.510	4	0,07
20	26	26.456.850.778.246.800	36	0,30
24	26	26.735.679.762.866.500	4	0,08
29	27	27.085.767.422.458.100	4	0,07
7	27	27.585.495.252.408.900	400	2,86
21	27	2.759.951.344.312.940	36	0,29
45	27	27.636.238.631.968.500	324	0,40
21	27	27.953.814.706.648.900	36	0,29
24	28	2.816.720.077.759.170	16	0,17
10	28	2.827.054.570.503.160	324	1,80
35	28	28.514.945.462.208.000	49	0,20
33	29	29.539.163.273.879.300	16	0,12
22	31	318.811.132.203.948	81	0,41
19	31	31.979.718.509.094.900	144	0,63
12	32	3.255.003.648.935.850	400	1,67
30	32	3.268.274.988.366.330	4	0,07
32	33	33.520.701.136.829.800	1	0,03
22	35	350.712.504.132.299	169	0,59
17	37	3.738.361.897.887.470	400	1,18
62	38	38.094.974.835.890.900	576	0,39
30	39	399.554.291.640.023	81	0,30
14	41	4.187.043.076.809.450	729	1,93

Model ANN 8 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
21	8	880.710.824.710.576	169	0,62
8	9	9.583.359.596.528.120	1	0,13
63	10	10.264.834.489.704.600	2809	0,84
6	10	10.465.302.956.147.000	16	0,67
16	10	10.860.933.928.247.900	36	0,38
47	12	1.217.298.158.178.660	1225	0,74
12	12	1.220.584.536.317.650	0	0,00
9	12	12.341.472.923.690.700	9	0,33
11	12	12.376.290.675.765.100	1	0,09
11	12	12.376.290.675.765.100	1	0,09
10	12	127.854.168.718.248	4	0,20
9	12	1.284.326.114.592.250	9	0,33
22	12	12.997.090.797.085.800	100	0,45
9	13	1.305.638.215.472.180	16	0,44
23	13	13.200.901.750.183.100	100	0,43
26	13	13.459.198.416.166.000	169	0,50
9	13	13.500.711.384.280.200	16	0,44
9	13	13.893.415.761.408.200	16	0,44
8	13	13.893.415.761.408.200	25	0,63
9	14	14.080.671.594.582.200	25	0,56
9	14	14.257.848.058.632.200	25	0,56
10	14	14.343.924.586.852.400	16	0,40
46	14	14.398.843.529.400.900	1024	0,70
14	14	1.451.058.376.664.780	0	0,00
24	14	14.644.340.539.034.400	100	0,42
36	14	14.684.263.528.051.400	484	0,61
8	14	14.705.078.628.329.500	36	0,75
8	14	14.976.209.912.651.600	36	0,75
10	15	1.517.236.442.186.800	25	0,50
8	15	1.517.930.626.871.720	49	0,88
13	15	15.204.257.874.584.700	4	0,15
18	15	15.209.233.122.082.900	9	0,17
9	15	15.213.540.212.699.100	36	0,67
55	15	15.472.556.640.306.600	1600	0,73
15	15	15.473.577.059.267.500	0	0,00
6	15	15.484.143.120.277.500	81	1,50
17	15	15.489.272.130.520.100	4	0,12
7	15	15.963.453.440.969.300	64	1,14
13	15	15.997.989.907.268.800	4	0,15
22	16	16.046.512.619.871.700	36	0,27
15	16	1.614.537.389.515.710	1	0,07
16	16	16.200.895.859.419	0	0,00
15	16	1.626.220.741.303.430	1	0,07
48	16	16.491.355.176.638.500	1024	0,67
19	16	16.624.919.886.629.700	9	0,16
17	16	16.731.865.297.896.300	1	0,06
14	17	17.042.329.448.896.500	9	0,21
56	17	17.082.844.407.308.300	1521	0,70
10	17	17.102.549.423.713.600	49	0,70
6	17	17.275.757.828.963.800	121	1,83
26	17	1.743.684.245.920.530	81	0,35
25	17	1.756.667.568.527.470	64	0,32
19	18	18.099.969.522.744.400	1	0,05

14	18	18.314.184.832.485.100	16	0,29
9	18	18.336.106.480.363.600	81	1,00
17	18	1.839.873.347.353.440	1	0,06
22	18	1.839.952.152.702.450	16	0,18
9	18	18.412.534.827.844.000	81	1,00
28	18	1.849.287.483.056.110	100	0,36
6	18	1.862.419.855.283.300	144	2,00
26	18	18.645.805.512.247.200	64	0,31
14	18	1.866.535.164.040.030	16	0,29
18	18	18.728.714.015.471.700	0	0,00
10	18	1.877.122.968.130.750	64	0,80
13	18	18.869.546.184.555.500	25	0,38
7	18	1.887.380.275.869.450	121	1,57
19	19	1.923.952.586.324.530	0	0,00
12	19	19.249.515.538.080.500	49	0,58
10	19	19.403.640.643.659.000	81	0,90
13	19	1.940.759.162.529.160	36	0,46
15	19	1.943.488.542.295.370	16	0,27
12	19	1.957.389.403.518.520	49	0,58
22	19	1.960.586.917.892.100	9	0,14
7	19	19.684.512.146.482.000	144	1,71
9	19	19.728.496.644.473.600	100	1,11
19	19	19.994.685.868.041.400	0	0,00
19	20	2.019.921.051.380.440	1	0,05
9	20	20.215.392.467.807.000	121	1,22
7	20	20.215.392.467.807.000	169	1,86
26	20	20.215.392.467.807.000	36	0,23
13	20	20.560.794.737.956.900	49	0,54
20	20	20.586.987.802.760.500	0	0,00
25	20	207.577.594.691.991	25	0,20
11	20	20.793.469.389.695.100	81	0,82
14	20	2.097.118.709.612.680	36	0,43
40	21	21.089.646.052.095.900	361	0,48
37	21	21.280.845.931.749.300	256	0,43
6	21	2.162.913.795.780.180	225	2,50
20	21	21.824.804.293.794.600	1	0,05
26	22	2.212.829.707.384.340	16	0,15
11	22	22.262.447.785.268.200	121	1,00
14	22	22.292.508.705.389.800	64	0,57
30	22	2.229.453.123.697.360	64	0,27
22	22	2.265.208.415.304.060	0	0,00
18	22	22.802.882.965.783.100	16	0,22
10	22	22.817.764.352.500.100	144	1,20
33	22	22.854.348.835.471.500	121	0,33
36	22	22.972.762.389.059.800	196	0,39
31	23	23.241.807.701.656.000	64	0,26
10	23	23.254.699.237.698.500	169	1,30
17	23	23.619.954.914.040.600	36	0,35
53	23	2.362.698.083.372.450	900	0,57
20	23	23.905.174.681.569.900	9	0,15
21	24	24.068.631.241.098.000	9	0,14
15	24	24.082.505.007.522.400	81	0,60
22	24	24.175.751.808.763.200	4	0,09
24	24	2.418.243.808.849.240	0	0,00
13	24	2.429.738.244.256.970	121	0,85

9	24	2.429.738.244.256.970	225	1,67
60	24	2.434.669.552.808.560	1296	0,60
12	24	24.787.799.504.460.600	144	1,00
10	25	25.440.197.046.845.000	225	1,50
27	25	25.798.943.245.924.600	4	0,07
24	26	26.321.995.266.040.100	4	0,08
21	26	26.359.505.357.616.100	25	0,24
29	26	26.415.730.873.837.800	9	0,10
11	26	2.642.434.352.021.160	225	1,36
22	27	27.515.686.200.021.000	25	0,23
28	28	28.207.579.619.411.900	0	0,00
15	28	28.352.101.732.265.200	169	0,87
7	28	28.391.577.160.017.000	441	3,00
17	28	28.560.783.378.778.200	121	0,65
20	30	30.007.984.800.703.400	100	0,50
45	30	3.018.871.577.685.230	225	0,33
35	31	31.122.602.601.206.400	16	0,11
12	32	3.249.290.846.754.100	400	1,67
30	33	3.309.580.982.702.570	9	0,10
19	35	353.529.513.461.772	256	0,84
32	35	35.412.354.996.598.300	9	0,09
62	40	4.076.944.349.760.610	484	0,35
30	40	409.802.898.370.294	100	0,33
17	41	4.127.413.013.852.760	576	1,41
14	48	48.285.363.516.171.700	1156	2,43



Model ANN 7 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
12	6	6.011.559.216.494.650	36	0,50
25	6	611.048.988.874.504	361	0,76
21	7	7.146.066.659.128.720	196	0,67
63	7	7.449.603.979.863.460	3136	0,89
55	7	7.557.079.152.307.310	2304	0,87
9	8	8.724.939.663.929.270	1	0,11
6	8	894.884.227.920.939	4	0,33
6	9	9.092.474.163.991.380	9	0,50
6	9	9.422.253.239.472.990	9	0,50
17	9	9.467.643.495.948.460	64	0,47
23	9	9.635.143.788.824.140	196	0,61
8	9	980.594.312.593.507	1	0,13
11	9	9.806.408.063.357.330	4	0,18
11	9	9.806.408.063.357.330	4	0,18
26	10	10.175.992.419.860.800	256	0,62
9	10	1.052.088.111.449.180	1	0,11
7	10	1.052.088.111.449.180	9	0,43
26	10	1.052.088.111.449.180	256	0,62
6	10	10.773.223.231.542.700	16	0,67
14	11	11.619.694.916.826.700	9	0,21
22	11	11.672.695.259.719.800	121	0,50
13	12	12.010.234.987.448.600	1	0,08
24	12	1.226.083.702.165.850	144	0,50
9	12	12.741.558.853.571.000	9	0,33
8	12	12.741.558.853.571.000	16	0,50
9	12	12.777.885.880.234.100	9	0,33
15	12	12.806.716.883.621.700	9	0,20
53	12	12.815.282.928.805.600	1681	0,77
10	12	12.914.993.625.489.200	4	0,20
13	13	13.149.401.731.311.100	0	0,00
13	13	13.660.445.408.923.900	0	0,00
9	13	13.660.445.408.923.900	16	0,44
9	13	13.697.450.746.097.000	16	0,44
48	13	13.777.228.143.605.900	1225	0,73
26	14	14.036.312.067.498.200	144	0,46
9	14	14.583.427.842.275.900	25	0,56
8	14	14.590.750.458.977.400	36	0,75
8	14	14.812.455.773.002.100	36	0,75
47	14	14.888.721.506.513.900	1089	0,70
9	14	1.490.072.544.346.590	25	0,56
15	14	14.901.021.788.711.000	1	0,07
36	15	15.271.008.950.750.800	441	0,58
12	15	15.369.897.390.153.800	9	0,25
10	15	1.537.118.722.291.120	25	0,50
15	15	15.376.283.497.102.600	0	0,00
10	15	15.535.767.158.469.300	25	0,50
27	15	15.753.682.075.816.200	144	0,44
8	15	15.759.591.854.145.000	49	0,88
28	15	15.817.906.114.296.100	169	0,46
26	15	1.587.124.725.529.710	121	0,42
10	15	15.916.792.336.674.300	25	0,50
15	15	15.928.292.283.206.900	0	0,00
17	15	15.992.813.856.695.600	4	0,12

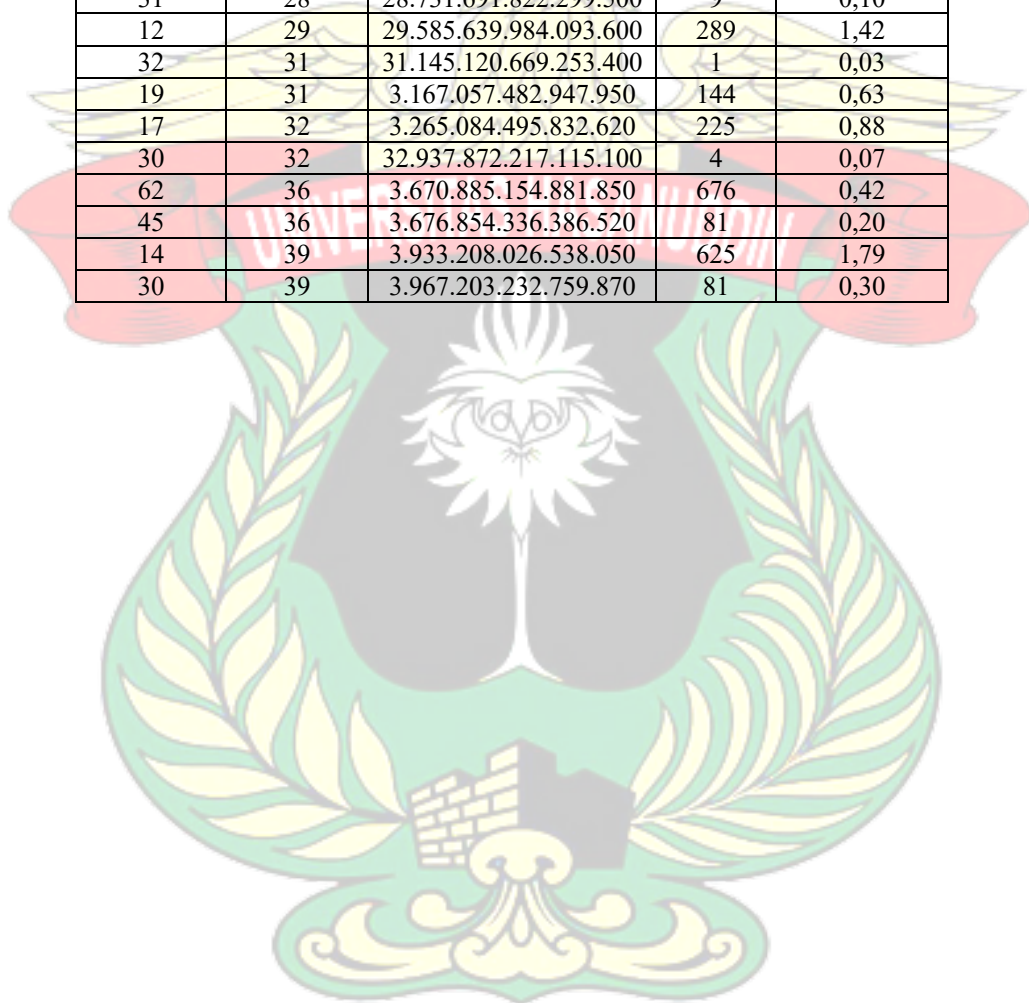
12	16	16.030.137.401.624.400	16	0,33
26	16	16.048.797.071.775.600	100	0,38
13	16	16.162.710.557.831.500	9	0,23
10	16	16.346.540.458.572.000	36	0,60
10	16	1.636.435.562.410.540	36	0,60
22	16	16.399.207.138.478.500	36	0,27
46	16	1.650.932.104.893.130	900	0,65
18	16	1.653.254.250.947.480	4	0,11
7	16	1.658.597.400.824.350	81	1,29
10	16	16.696.977.396.147.900	36	0,60
19	16	16.790.646.487.884.400	9	0,16
16	16	1.688.463.792.024.900	0	0,00
18	16	1.692.586.376.241.030	4	0,11
36	17	17.026.609.792.173.100	361	0,53
19	17	1.704.971.223.207.530	4	0,11
11	17	1.717.538.993.034.040	36	0,55
14	17	17.357.149.256.571.600	9	0,21
6	17	17.793.065.496.707.800	121	1,83
22	17	1.782.619.183.234.290	25	0,23
14	17	1.783.585.578.156.980	9	0,21
16	18	18.048.363.986.015.700	4	0,13
56	18	1.841.879.190.000.750	1444	0,68
10	18	18.618.371.820.844.800	64	0,80
11	18	1.867.802.129.908.920	49	0,64
22	18	18.945.905.772.739.100	16	0,18
22	18	1.898.991.920.208.680	16	0,18
9	19	19.015.008.823.675.400	100	1,11
7	19	190.412.279.469.112	144	1,71
15	19	19.080.857.273.335.600	16	0,27
7	19	19.092.384.803.017.300	144	1,71
14	19	19.346.780.693.898.600	25	0,36
9	19	19.397.642.156.112.100	100	1,11
17	19	1.945.857.196.299.080	4	0,12
9	19	19.602.444.013.583.900	100	1,11
19	19	1.962.994.612.446.190	0	0,00
9	19	1.982.197.771.621.100	100	1,11
12	19	1.988.959.285.930.760	49	0,58
13	19	19.924.392.449.217.300	36	0,46
17	19	19.940.472.391.877.800	4	0,12
11	20	20.050.311.604.463.900	81	0,82
19	20	2.014.490.286.384.780	1	0,05
24	20	20.296.462.980.511.200	16	0,17
28	20	20.584.811.797.022.200	64	0,29
9	20	20.597.171.316.162.600	121	1,22
40	20	2.062.334.900.275.590	400	0,50
14	20	2.083.945.446.091.280	36	0,43
17	20	208.974.931.546.507	9	0,18
15	21	2.105.804.895.003.220	36	0,40
60	21	21.129.774.526.020.100	1521	0,65
20	21	2.150.777.182.258.230	1	0,05
18	21	2.153.231.807.971.760	9	0,17
14	21	21.819.273.122.369.100	49	0,50
37	21	2.182.081.203.236.670	256	0,43
25	21	21.905.136.582.039.100	16	0,16
19	22	2.200.527.937.354.180	9	0,16

13	22	2.217.924.072.020.490	81	0,69
35	22	22.216.245.811.008.700	169	0,37
20	22	2.245.756.577.611.540	4	0,10
20	23	23.574.749.301.688.300	9	0,15
7	23	23.773.477.038.057.300	256	2,29
29	23	23.939.046.809.998.600	36	0,21
24	24	24.089.577.344.452.600	0	0,00
31	24	24.349.118.389.279.600	49	0,23
33	24	24.719.533.618.717.400	81	0,27
20	24	24.934.301.918.703.900	16	0,20
30	25	258.704.822.913.206	25	0,17
21	26	26.277.012.184.114.800	25	0,24
22	26	26.553.711.687.192.600	16	0,18
22	27	2.717.066.251.535.350	25	0,23
12	28	28.298.021.203.129.100	256	1,33
30	28	28.804.926.504.174.700	4	0,07
10	29	29.281.869.304.667.900	361	1,90
19	30	30.242.555.958.535.000	121	0,58
21	30	30.336.315.235.800.000	81	0,43
32	31	31.184.053.206.459.000	1	0,03
45	31	31.442.101.396.740.300	196	0,31
17	32	3.209.617.757.235.970	225	0,88
30	40	4.035.052.445.566.670	100	0,33
14	42	42.155.363.570.180.400	784	2,00
62	42	4.236.772.023.731.720	400	0,32

Model ANN 6 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
12	8	821.634.820.192.266	16	0,33
55	8	8.416.790.320.828.500	2209	0,85
17	9	9.508.586.918.616.230	64	0,47
25	10	10.469.360.635.530.400	225	0,60
9	10	10.634.669.447.924.300	1	0,11
7	10	10.634.669.447.924.300	9	0,43
26	10	10.634.669.447.924.300	256	0,62
6	10	10.772.160.544.393.500	16	0,67
10	10	1.086.391.840.448.570	0	0,00
47	10	10.971.016.262.371.400	1369	0,79
26	11	1.113.454.903.353.440	225	0,58
9	11	11.698.419.130.869.600	4	0,22
26	11	11.885.227.946.404.400	225	0,58
10	11	119.624.239.761.336	1	0,10
9	12	12.080.836.315.370.700	9	0,33
8	12	12.080.836.315.370.700	16	0,50
53	12	1.227.678.955.168.040	1681	0,77
10	12	12.627.468.502.056.500	4	0,20
16	12	12.723.905.495.801.800	16	0,25
23	12	1.273.506.495.363.120	121	0,48
10	12	1.274.200.023.030.900	4	0,20
18	12	12.844.726.054.067.900	36	0,33
21	12	1.285.207.457.950.830	81	0,43
26	12	1.288.202.179.161.870	196	0,54
9	13	13.029.006.506.848.000	16	0,44
8	13	13.260.643.860.886.600	25	0,63
6	13	13.266.382.101.187.600	49	1,17
27	13	13.554.478.852.917.800	196	0,52
7	13	13.711.066.080.312.400	36	0,86
11	13	13.913.515.824.091.300	4	0,18
11	13	13.913.515.824.091.300	4	0,18
36	13	13.937.865.889.424.600	529	0,64
13	13	1.398.218.588.939.040	0	0,00
17	14	14.343.351.974.812.500	9	0,18
13	14	1.453.887.414.626.580	1	0,08
9	14	1.453.887.414.626.580	25	0,56
63	14	14.558.119.403.404.900	2401	0,78
11	14	14.862.298.192.667.500	9	0,27
6	14	14.993.377.287.130.300	64	1,33
9	15	15.154.185.241.461.100	36	0,67
13	15	15.164.404.192.749.200	4	0,15
8	15	15.245.427.646.564.300	49	0,88
13	15	15.378.821.204.506.100	4	0,15
6	15	1.541.040.969.326.930	81	1,50
24	15	15.574.097.530.796.900	81	0,38
8	15	15.778.850.172.176.600	49	0,88
14	15	1.582.324.775.065.110	1	0,07
22	15	1.583.120.478.102.400	49	0,32
14	16	1.600.466.325.451.440	4	0,14
28	16	16.251.187.929.676.100	144	0,43
56	16	16.739.267.834.794.200	1600	0,71
19	16	16.858.643.408.468.800	9	0,16
15	17	17.153.083.633.050.300	4	0,13

14	17	1.725.489.558.388.520	9	0,21
9	17	17.263.556.368.293.800	64	0,89
9	17	17.287.468.553.699.600	64	0,89
36	17	17.491.268.283.501.600	361	0,53
15	17	17.620.203.685.211.900	4	0,13
19	17	17.654.927.866.077.500	4	0,11
22	17	1.782.028.602.055.140	25	0,23
12	17	179.217.806.412.545	25	0,42
17	17	17.933.962.283.255.500	0	0,00
18	18	1.806.805.775.081.430	0	0,00
14	18	1.831.671.952.764.640	16	0,29
9	18	18.575.315.616.618.700	81	1,00
17	18	18.585.521.862.646.500	1	0,06
10	18	18.628.647.965.427.500	64	0,80
15	18	1.865.153.937.219.220	9	0,20
48	18	1.865.880.448.284.560	900	0,63
22	18	18.962.698.345.600.300	16	0,18
9	19	19.069.383.749.669.700	100	1,11
10	19	1.919.697.730.197.430	81	0,90
15	19	1.923.863.243.761.840	16	0,27
22	19	19.406.494.142.367.200	9	0,14
8	19	19.518.313.284.657.600	121	1,38
9	19	1.956.477.525.385.070	100	1,11
26	19	1.976.160.326.225.840	49	0,27
37	19	19.761.922.022.850.700	324	0,49
20	19	1.985.837.270.632.730	1	0,05
28	19	19.886.977.217.021.400	81	0,32
40	19	1.998.119.172.646.830	441	0,53
19	20	20.237.500.537.487.600	1	0,05
11	20	2.035.052.279.210.610	81	0,82
6	20	20.372.065.219.740.500	196	2,33
12	20	20.446.958.633.419.500	64	0,67
33	20	20.562.426.036.018.200	169	0,39
7	20	2.069.845.065.347.180	169	1,86
16	20	20.729.744.897.172.800	16	0,25
9	20	20.777.137.361.684.100	121	1,22
10	20	20.922.383.273.518.700	100	1,00
12	21	21.015.901.232.535.900	81	0,75
35	21	21.181.827.592.664.800	196	0,40
18	21	2.122.133.507.672.530	9	0,17
19	21	21.243.702.181.751.200	4	0,11
9	21	2.144.102.723.771.410	144	1,33
15	21	217.149.650.734.821	36	0,40
25	21	21.717.692.479.009.600	16	0,16
46	21	21.757.404.487.211.100	625	0,54
10	21	21.871.006.171.418.200	121	1,10
13	22	2.200.926.589.266.080	81	0,69
15	22	22.086.521.182.302.300	49	0,47
17	22	2.210.968.416.681.810	25	0,29
22	22	22.239.961.483.397.400	0	0,00
22	22	22.249.346.019.332.100	0	0,00
13	22	22.295.141.186.669.000	81	0,69
24	22	224.280.501.915.374	4	0,08
11	22	2.266.066.798.126.210	121	1,00
14	22	22.691.008.115.088.200	64	0,57

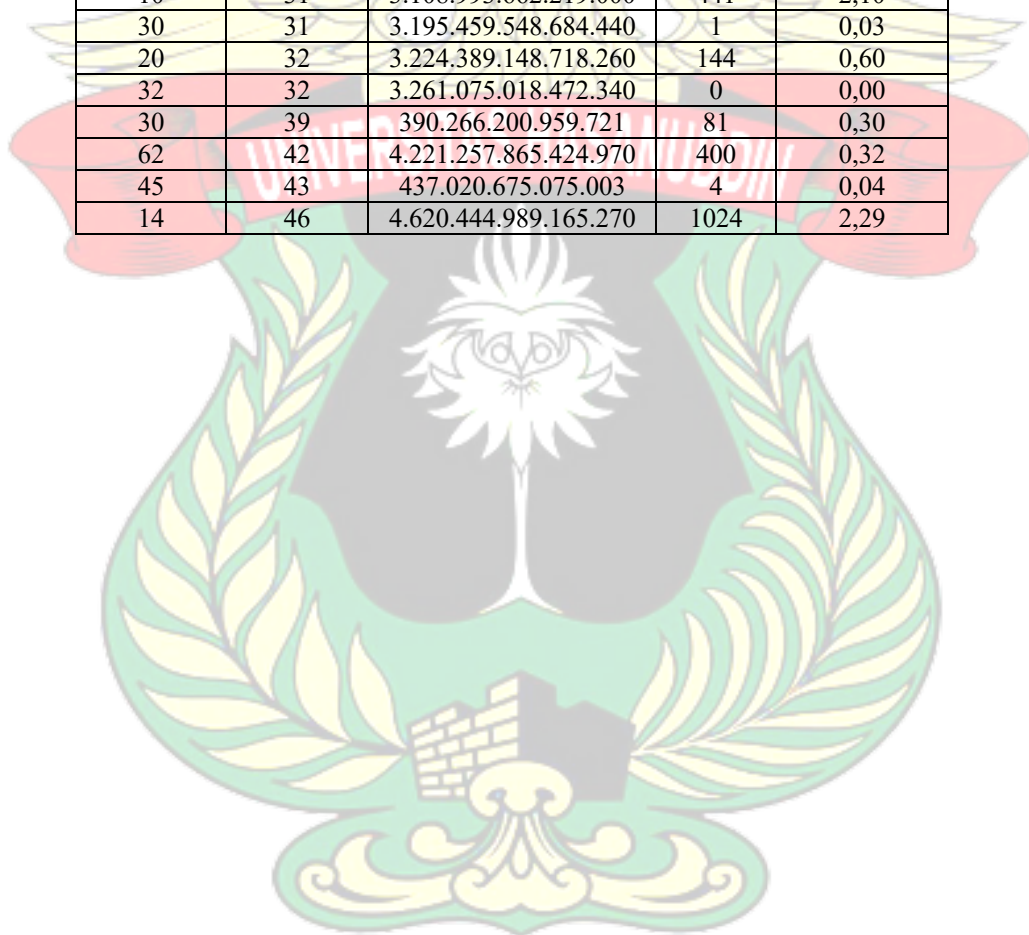
7	22	22.745.451.694.517.400	225	2,14
20	22	22.990.611.525.666.200	4	0,10
14	23	23.295.280.819.685.800	81	0,64
22	23	23.456.832.984.407.200	1	0,05
24	23	23.674.080.564.426.700	1	0,04
29	23	237.894.059.176.159	36	0,21
21	24	24.252.393.292.365.200	9	0,14
19	25	25.267.551.522.832.000	36	0,32
7	25	25.844.266.870.273.600	324	2,57
20	26	2.601.831.460.544.780	36	0,30
60	26	26.106.162.591.916.300	1156	0,57
30	26	26.541.395.350.642.700	16	0,13
10	27	2.744.765.247.315.750	289	1,70
20	28	28.051.025.571.730.200	64	0,40
21	28	28.136.110.196.564.900	49	0,33
31	28	28.731.691.822.299.500	9	0,10
12	29	29.585.639.984.093.600	289	1,42
32	31	31.145.120.669.253.400	1	0,03
19	31	3.167.057.482.947.950	144	0,63
17	32	3.265.084.495.832.620	225	0,88
30	32	32.937.872.217.115.100	4	0,07
62	36	3.670.885.154.881.850	676	0,42
45	36	3.676.854.336.386.520	81	0,20
14	39	3.933.208.026.538.050	625	1,79
30	39	3.967.203.232.759.870	81	0,30



Model ANN 5 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
23	1	10.909.958.595.784.200	484	0,96
12	2	21.814.677.751.824.900	100	0,83
6	4	4.885.303.145.611.130	4	0,33
11	6	6.608.596.165.456.150	25	0,45
11	6	6.608.596.165.456.150	25	0,45
22	9	9.018.131.707.110.620	169	0,59
13	10	10.524.958.425.061.500	9	0,23
14	10	10.743.718.805.413.800	16	0,29
8	11	11.007.550.973.768.800	9	0,38
9	11	11.085.090.054.320.800	4	0,22
47	11	11.291.871.429.705.700	1296	0,77
9	11	1.156.600.759.923.980	4	0,22
9	11	11.623.571.719.135.700	4	0,22
15	11	11.787.479.707.097.500	16	0,27
24	12	12.093.019.936.478.500	144	0,50
55	12	12.139.787.639.600.800	1849	0,78
10	12	1.242.595.438.433.000	4	0,20
6	12	12.673.554.893.422.600	36	1,00
10	12	12.929.451.889.767.000	4	0,20
25	13	1.312.891.930.882.140	144	0,48
6	13	13.277.157.387.187.200	49	1,17
26	13	13.541.036.067.496.300	169	0,50
7	14	14.142.056.287.350.100	49	1,00
26	14	14.491.411.102.857.300	144	0,46
6	14	14.593.418.335.508.800	64	1,33
10	14	1.479.476.807.520.690	16	0,40
15	14	14.891.437.860.073.400	1	0,07
18	15	15.057.552.285.087.000	9	0,17
18	15	15.165.842.517.331.300	9	0,17
9	15	15.186.924.924.671.100	36	0,67
6	15	15.293.931.984.890.700	81	1,50
16	15	15.416.095.608.473.600	1	0,06
36	15	15.766.763.531.400.600	441	0,58
22	15	15.791.626.413.233.000	49	0,32
17	15	15.833.073.469.326.700	4	0,12
10	15	15.971.374.245.520.400	25	0,50
17	16	16.315.545.026.690.200	1	0,06
9	16	163.200.449.262.653	49	0,78
8	16	163.200.449.262.653	64	1,00
13	16	16.427.996.940.328.500	9	0,23
22	16	1.651.126.097.075.690	36	0,27
53	16	1.661.851.906.085.350	1369	0,70
8	16	16.694.981.260.307.100	64	1,00
9	16	16.746.623.886.410.500	49	0,78
11	16	16.765.216.394.614.000	25	0,45
63	16	1.686.242.925.822.210	2209	0,75
15	16	16.956.819.776.862.700	1	0,07
10	17	1.709.028.155.726.030	49	0,70
13	17	17.097.177.084.013.700	16	0,31
14	17	1.720.491.029.604.030	9	0,21
17	17	17.461.152.930.404.000	0	0,00
19	17	1.747.042.538.044.690	4	0,11
13	17	17.724.706.206.465.000	16	0,31

18	17	17.752.635.350.574.500	1	0,06
22	17	17.843.323.881.500.800	25	0,23
9	17	1.789.060.924.476.350	64	0,89
7	17	1.789.060.924.476.350	100	1,43
26	17	1.789.060.924.476.350	81	0,35
17	17	179.642.727.155.812	0	0,00
26	18	18.179.761.156.112.900	64	0,31
28	18	18.383.923.400.838.100	100	0,36
11	18	18.740.414.939.991.600	49	0,64
29	18	18.793.014.298.562.700	121	0,38
19	18	18.954.986.048.948.300	1	0,05
10	19	19.098.301.292.384.200	81	0,90
21	19	19.150.744.258.708.900	4	0,10
19	19	19.334.020.680.000.000	0	0,00
13	19	19.658.942.511.959.100	36	0,46
9	19	19.658.942.511.959.100	100	1,11
9	19	19.808.932.169.875.900	100	1,11
8	19	19.838.123.422.347.600	121	1,38
16	19	19.839.936.595.431.500	9	0,19
14	19	19.853.716.127.378.700	25	0,36
56	20	20.086.073.676.080.700	1296	0,64
14	20	20.102.406.911.154.500	36	0,43
12	20	20.104.790.256.793.500	64	0,67
36	20	2.051.659.024.468.050	256	0,44
7	21	21.322.578.827.023.900	196	2,00
15	21	21.420.277.015.120.400	36	0,40
22	21	2.145.548.309.624.520	1	0,05
27	21	21.569.298.433.731.400	36	0,22
24	21	2.184.676.483.038.100	9	0,13
19	22	22.336.912.675.823.800	9	0,16
12	22	22.366.299.452.116.600	100	0,83
21	22	2.241.350.010.139.930	1	0,05
7	22	2.245.156.227.529.840	225	2,14
14	22	22.542.625.897.484.300	64	0,57
9	22	22.623.954.817.482.100	169	1,44
9	22	22.805.579.816.595.500	169	1,44
10	22	228.496.276.109.215	144	1,20
40	22	22.948.752.218.661.500	324	0,45
33	23	23.335.885.735.559.500	100	0,30
11	23	23.865.808.402.335.100	144	1,09
60	23	23.895.516.722.281.000	1369	0,62
12	23	23.958.747.234.138.600	121	0,92
9	23	2.399.235.753.790.460	196	1,56
37	24	24.021.695.389.721.500	169	0,35
31	24	2.422.338.240.801.790	49	0,23
24	24	2.425.901.918.475.430	0	0,00
8	24	24.300.561.415.245.000	256	2,00
19	24	24.498.630.461.859.400	25	0,26
48	24	24.584.165.771.511.100	576	0,50
12	24	2.464.267.181.342.250	144	1,00
17	24	24.743.866.353.286.700	49	0,41
26	25	25.073.922.653.400.800	1	0,04
15	25	2.535.451.915.019.690	100	0,67
13	25	25.388.031.993.557.600	144	0,92
28	25	25.587.692.817.837.300	9	0,11

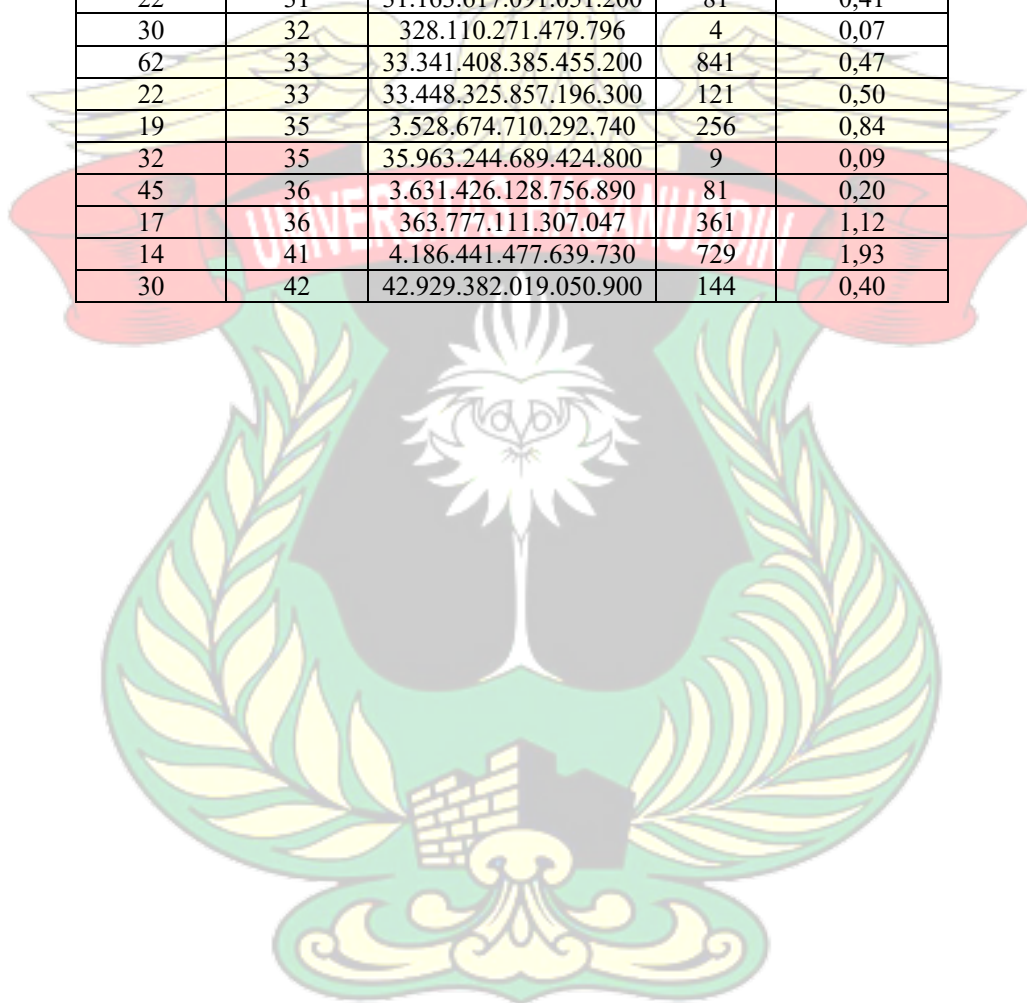
20	26	2.685.493.682.659.560	36	0,30
25	26	26.881.911.390.431.200	1	0,04
19	26	26.918.013.615.511.000	49	0,37
20	27	2.719.221.228.862.260	49	0,35
22	27	2.719.499.989.588.390	25	0,23
17	27	2.788.025.747.630.130	100	0,59
15	27	27.952.463.037.047.000	144	0,80
21	28	28.028.976.784.703.600	49	0,33
20	28	28.149.995.155.803.200	64	0,40
35	28	2.837.621.700.641.130	49	0,20
46	28	2.846.966.628.654.470	324	0,39
30	28	285.067.883.100.171	4	0,07
14	29	2.909.009.635.744.920	225	1,07
9	29	29.243.206.749.885.300	400	2,22
7	29	29.352.041.254.026.800	484	3,14
22	29	2.966.755.315.751.010	49	0,32
10	30	3.090.122.000.975.490	400	2,00
10	31	3.108.993.662.219.000	441	2,10
30	31	3.195.459.548.684.440	1	0,03
20	32	3.224.389.148.718.260	144	0,60
32	32	3.261.075.018.472.340	0	0,00
30	39	390.266.200.959.721	81	0,30
62	42	4.221.257.865.424.970	400	0,32
45	43	437.020.675.075.003	4	0,04
14	46	4.620.444.989.165.270	1024	2,29



Model ANN 4 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
12	8	8.202.340.798.487.210	16	0,33
23	10	10.795.180.661.849.900	169	0,57
63	11	11.244.195.674.071.500	2704	0,83
21	11	11.762.245.909.007.400	100	0,48
9	12	12.321.001.890.130.100	9	0,33
8	12	1.232.542.995.990.340	16	0,50
16	12	12.590.439.244.803.700	16	0,25
17	12	12.729.288.732.330.100	25	0,29
9	12	1.280.316.151.133.160	9	0,33
8	12	1.280.316.151.133.160	16	0,50
24	12	12.805.282.446.196.400	144	0,50
8	12	12.897.629.363.225.500	16	0,50
8	13	1.329.918.510.387.960	25	0,63
25	13	13.802.007.915.086.000	144	0,48
9	14	14.135.877.998.586.800	25	0,56
7	14	14.135.877.998.586.800	49	1,00
26	14	14.135.877.998.586.800	144	0,46
17	14	14.331.053.796.728.700	9	0,18
14	14	14.380.901.442.323.100	0	0,00
6	14	14.501.314.585.191.300	64	1,33
53	14	14.703.851.232.289.300	1521	0,74
6	14	14.878.058.731.592.700	64	1,33
55	14	14.903.853.397.072.700	1681	0,75
14	14	14.935.666.613.323.500	0	0,00
6	14	14.983.455.741.230.400	64	1,33
13	14	14.998.709.735.357.100	1	0,08
11	15	1.534.836.426.609.410	16	0,36
11	15	1.534.836.426.609.410	16	0,36
10	15	15.363.633.529.240.700	25	0,50
9	15	15.451.761.604.060.400	36	0,67
56	15	15.476.320.499.050.700	1681	0,73
9	15	15.770.424.130.479.900	36	0,67
9	15	15.916.049.807.649.700	36	0,67
13	16	16.108.994.367.481.200	9	0,23
6	16	16.185.616.707.307.400	100	1,67
12	16	1.637.306.833.971.750	16	0,33
14	16	16.391.255.713.588.800	4	0,14
14	16	16.561.375.633.770.800	4	0,14
10	16	1.664.763.408.659.230	36	0,60
26	16	16.775.103.170.553.800	100	0,38
19	16	16.891.492.089.158.000	9	0,16
25	17	1.716.156.679.825.260	64	0,32
26	17	17.173.431.518.087.900	81	0,35
9	17	1.724.722.338.708.550	64	0,89
27	17	17.640.012.713.622.900	100	0,37
19	17	17.694.444.876.872.400	4	0,11
19	17	17.892.413.044.810.700	4	0,11
22	17	17.912.846.012.961.000	25	0,23
13	17	17.948.856.035.266.500	16	0,31
9	18	18.117.650.085.338.800	81	1,00
22	18	18.275.721.205.322.600	16	0,18
9	18	18.294.126.355.237.500	81	1,00
47	18	1.840.543.995.536.540	841	0,62

22	18	18.480.420.638.158.700	16	0,18
11	18	18.733.917.518.982.100	49	0,64
48	18	18.806.818.692.645.900	900	0,63
16	18	18.830.557.185.269.400	4	0,13
37	18	18.878.475.505.419.200	361	0,51
15	18	18.898.371.976.889.400	9	0,20
11	18	18.916.255.429.082.400	49	0,64
10	19	19.004.425.051.496.900	81	0,90
19	19	19.243.915.713.098.800	0	0,00
9	19	19.248.823.707.355.400	100	1,11
20	19	19.274.250.530.796.600	1	0,05
40	19	19.590.362.817.559.200	441	0,53
10	19	19.595.861.377.005.300	81	0,90
13	19	19.608.688.514.125.000	36	0,46
6	19	1.966.843.918.649.440	169	2,17
20	19	19.721.343.561.548.600	1	0,05
18	19	19.849.570.919.755.400	1	0,06
26	19	1.995.900.387.949.020	49	0,27
15	20	2.001.139.663.511.260	25	0,33
8	20	2.021.877.653.297.720	144	1,50
17	20	20.256.804.131.483.300	9	0,18
22	20	20.370.685.785.583.000	4	0,09
10	20	20.528.715.726.299.400	100	1,00
46	20	20.543.144.124.569.500	676	0,57
13	20	20.549.523.691.643.400	49	0,54
9	20	20.549.523.691.643.400	121	1,22
10	20	20.611.230.940.092.900	100	1,00
26	20	20.682.797.300.177.600	36	0,23
36	20	2.076.212.049.701.470	256	0,44
24	20	20.991.281.640.061.500	16	0,17
12	21	2.105.909.931.094.510	81	0,75
12	21	2.134.452.413.154.000	81	0,75
28	21	2.144.901.086.083.500	49	0,25
36	21	2.164.623.942.218.870	225	0,42
17	21	21.796.321.861.015.200	16	0,24
10	21	21.810.942.396.647.800	121	1,10
20	21	21.828.122.243.889.200	1	0,05
7	21	21.884.453.860.234.400	196	2,00
15	21	21.896.078.729.522.500	36	0,40
15	21	21.942.539.037.583.400	36	0,40
18	21	21.977.941.773.569.300	9	0,17
28	22	22.162.741.849.780.400	36	0,21
10	22	22.306.166.929.099.700	144	1,20
15	22	2.239.033.006.576.700	49	0,47
13	23	2.328.925.027.732.260	100	0,77
7	23	23.556.334.741.974.700	256	2,29
14	23	23.814.363.574.624.500	81	0,64
15	24	2.418.993.394.063.630	81	0,60
9	24	24.321.912.522.838.700	225	1,67
7	24	2.437.907.066.147.020	289	2,43
9	24	24.602.879.232.836.900	225	1,67
10	24	24.613.662.918.960.900	196	1,40
22	24	24.670.534.503.749.500	4	0,09
30	24	24.785.256.714.919.900	36	0,20
11	24	248.577.790.854.825	169	1,18

18	24	24.977.558.619.660.500	36	0,33
17	25	25.396.916.152.121.900	64	0,47
19	26	26.180.033.644.865.400	49	0,37
31	26	26.343.921.406.481.900	25	0,16
14	26	2.636.802.645.962.910	144	0,86
21	26	26.669.296.678.023.000	25	0,24
7	26	2.667.547.485.577.980	361	2,71
35	26	2.692.704.611.339.980	81	0,26
29	27	2.726.420.120.918	4	0,07
60	28	28.113.907.690.681.300	1024	0,53
21	28	28.600.886.817.112.200	49	0,33
24	28	28.787.029.669.584.000	16	0,17
33	29	2.928.677.178.169.330	16	0,12
20	29	29.476.152.665.892.800	81	0,45
12	30	3.040.448.503.086.940	324	1,50
22	31	31.163.617.091.051.200	81	0,41
30	32	328.110.271.479.796	4	0,07
62	33	33.341.408.385.455.200	841	0,47
22	33	33.448.325.857.196.300	121	0,50
19	35	3.528.674.710.292.740	256	0,84
32	35	35.963.244.689.424.800	9	0,09
45	36	3.631.426.128.756.890	81	0,20
17	36	363.777.111.307.047	361	1,12
14	41	4.186.441.477.639.730	729	1,93
30	42	42.929.382.019.050.900	144	0,40



Model ANN 3 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
8	6	6.700.279.365.460.870	4	0,25
9	7	7.728.335.470.686.890	4	0,22
8	7	7.728.335.470.686.890	1	0,13
9	8	801.829.171.278.128	1	0,11
12	8	8.131.766.169.523.930	16	0,33
23	8	861.130.854.666.871	225	0,65
17	8	8.660.806.668.148.620	81	0,53
9	8	884.274.671.729.839	1	0,11
55	9	9.000.175.996.028.520	2116	0,84
13	9	9.788.967.024.143.730	16	0,31
8	9	9.808.981.785.472.930	1	0,13
47	9	9.826.099.601.417.550	1444	0,81
14	9	9.835.308.684.306.070	25	0,36
17	9	9.923.906.353.682.370	64	0,47
24	10	10.087.316.373.577.200	196	0,58
10	10	10.160.593.129.183.600	0	0,00
25	10	10.201.807.524.748.800	225	0,60
16	10	10.326.627.960.032.900	36	0,38
10	10	10.334.397.715.246.100	0	0,00
14	10	10.579.615.495.153.000	16	0,29
9	10	10.859.741.072.982.200	1	0,11
7	10	10.859.741.072.982.200	9	0,43
26	10	10.859.741.072.982.200	256	0,62
63	11	11.206.896.829.550.400	2704	0,83
14	11	11.230.666.544.189.100	9	0,21
26	11	11.238.468.914.939.800	225	0,58
8	11	11.304.957.913.451.200	9	0,38
21	11	11.485.020.933.130.800	100	0,48
26	11	11.566.237.687.812.300	225	0,58
53	11	11.805.534.062.799.600	1764	0,79
56	11	1.187.246.158.569.720	2025	0,80
11	12	12.402.605.661.310.000	1	0,09
11	12	12.402.605.661.310.000	1	0,09
10	12	12.429.465.846.212.000	4	0,20
6	12	12.819.195.325.258.800	36	1,00
18	12	12.864.511.672.431.000	36	0,33
6	12	1.290.863.041.256.440	36	1,00
6	13	1.300.248.577.049.290	49	1,17
15	13	13.453.588.186.043.200	4	0,13
9	14	14.096.303.001.855.600	25	0,56
10	14	1.425.961.469.061.910	16	0,40
26	14	14.306.517.499.822.100	144	0,46
22	14	1.438.121.593.371.570	64	0,36
13	14	14.390.976.263.131.200	1	0,08
14	14	14.392.380.413.504.600	0	0,00
19	14	14.568.962.244.406.900	25	0,26
7	14	146.819.888.197.146	49	1,00
9	14	1.481.993.600.335.330	25	0,56
13	14	14.951.941.927.380.200	1	0,08
9	14	14.951.941.927.380.200	25	0,56
17	14	14.986.829.486.343.200	9	0,18
40	15	15.135.146.084.807.700	625	0,63
18	15	15.319.418.699.402.300	9	0,17

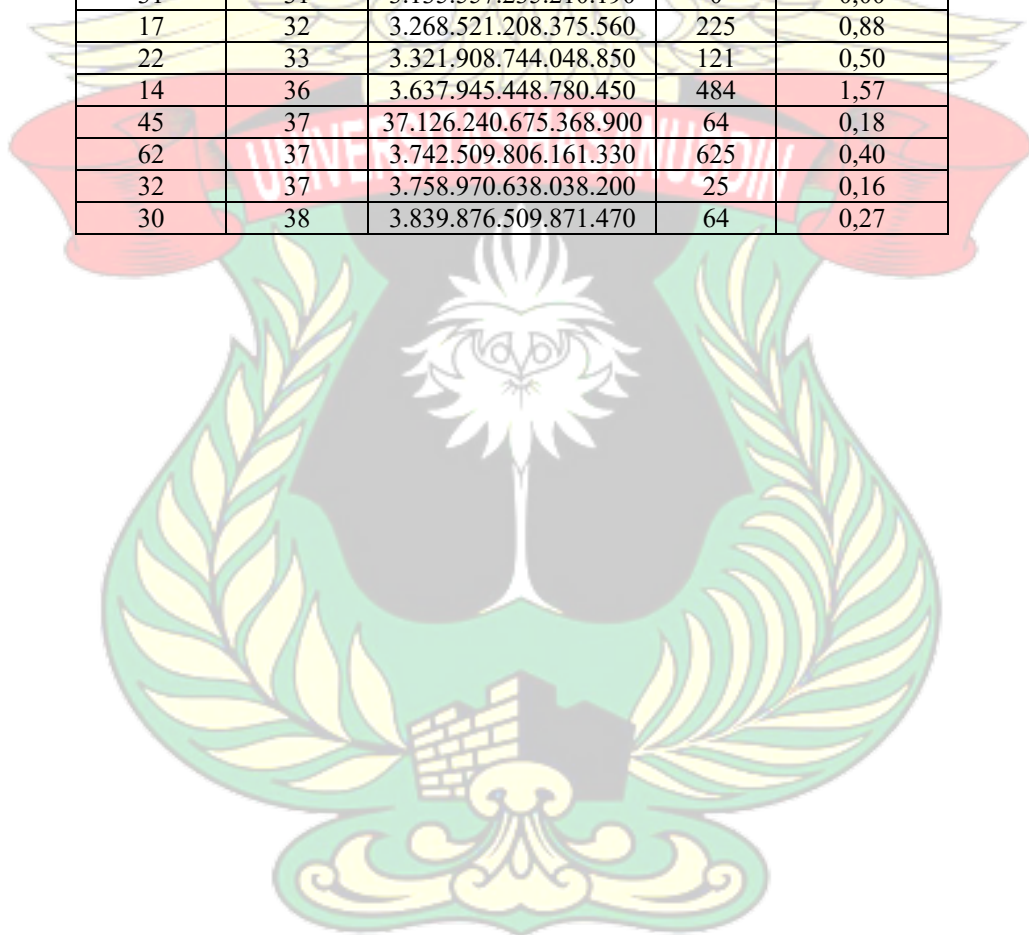
9	15	15.369.063.559.396.200	36	0,67
22	15	15.616.862.964.921.500	49	0,32
12	16	16.007.990.615.638.800	16	0,33
37	16	16.026.431.964.737.500	441	0,57
24	16	16.161.082.992.566.900	64	0,33
11	16	16.457.607.276.888.700	25	0,45
22	16	16.480.611.791.852.200	36	0,27
27	16	1.671.039.111.915.620	121	0,41
9	16	1.672.881.356.813.770	49	0,78
19	16	16.924.415.215.029.300	9	0,16
11	17	17.186.008.014.615.300	36	0,55
15	17	17.371.394.594.104.500	4	0,13
48	17	17.415.858.947.587.700	961	0,65
15	17	17.432.056.274.953.200	4	0,13
19	17	17.687.579.720.161.700	4	0,11
6	17	17.787.534.095.314.200	121	1,83
9	17	17.829.181.328.868.600	64	0,89
12	17	17.941.061.487.108.900	25	0,42
17	18	18.267.122.845.201.200	1	0,06
36	18	18.348.070.758.756.600	324	0,50
10	18	18.565.158.134.187.400	64	0,80
6	18	1.867.750.170.379.340	144	2,00
13	18	1.874.296.497.369.610	25	0,38
19	18	18.854.036.580.922.700	1	0,05
16	18	1.893.235.310.501.140	4	0,13
18	19	19.067.174.126.122.000	1	0,06
10	19	19.095.119.240.805.100	81	0,90
20	19	19.100.198.984.097.000	1	0,05
25	19	19.238.883.001.314.500	36	0,24
12	19	19.567.119.625.474.500	49	0,58
26	19	19.670.665.419.075.000	49	0,27
9	19	19.848.947.135.498.100	100	1,11
8	19	19.863.147.015.603.700	121	1,38
10	19	19.920.782.844.476.700	81	0,90
13	20	2.000.846.152.220.690	49	0,54
36	20	20.023.520.464.125.700	256	0,44
28	20	2.023.808.525.889.450	64	0,29
17	20	20.348.637.572.178.400	9	0,18
46	20	20.484.373.337.579.200	676	0,57
14	21	2.103.490.091.288.690	49	0,50
11	21	2.123.983.125.066.300	100	0,91
13	21	2.133.967.187.831.300	64	0,62
15	21	21.366.393.308.931.700	36	0,40
15	21	21.497.451.666.636.400	36	0,40
19	21	2.159.104.294.383.100	4	0,11
29	21	21.642.060.748.475.200	64	0,28
20	21	21.708.963.400.517.800	1	0,05
10	21	21.719.717.473.599.900	121	1,10
35	21	21.888.615.022.291.900	196	0,40
33	21	219.970.164.656.271	144	0,36
7	22	22.018.689.878.152.400	225	2,14
20	22	22.055.493.659.207.100	4	0,10
24	22	2.215.117.927.391.120	4	0,08
9	22	22.358.410.742.187.900	169	1,44
30	22	2.257.833.001.849.290	64	0,27

21	22	22.840.561.220.455.700	1	0,05
14	22	2.287.616.685.064.240	64	0,57
15	23	23.019.638.190.419.400	64	0,53
10	23	23.052.700.871.890.600	169	1,30
9	23	2.305.417.822.364.300	196	1,56
28	23	2.341.358.630.167.010	25	0,18
22	23	2.361.453.545.157.610	1	0,05
22	23	2.395.625.481.871.240	1	0,05
7	24	24.630.978.597.603.600	289	2,43
7	25	25.071.326.617.331.500	324	2,57
21	25	25.188.996.070.723	16	0,19
22	25	25.758.719.765.784.600	9	0,14
31	25	25.796.066.549.028.400	36	0,19
12	26	26.656.383.266.255	196	1,17
20	27	27.898.802.770.903.100	49	0,35
60	29	29.639.604.724.913.500	961	0,52
22	29	2.966.548.936.670.840	49	0,32
30	31	31.371.244.029.998.600	1	0,03
62	32	3.280.659.318.601.470	900	0,48
32	33	3.382.665.778.540.160	1	0,03
45	33	33.829.217.958.902.000	144	0,27
19	33	33.993.968.890.809.900	196	0,74
17	36	364.160.437.130.298	361	1,12
14	37	3.774.651.302.211.160	529	1,64
30	39	3.907.890.994.641.850	81	0,30

Model ANN 2 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
12	1	15.230.835.830.037.100	121	0,92
23	0	0.3627697724611352	529	1,00
6	5	56.008.624.972.799.700	1	0,17
13	7	7.512.178.716.712.380	36	0,46
9	10	10.794.365.562.703.600	1	0,11
7	10	10.794.365.562.703.600	9	0,43
26	10	10.794.365.562.703.600	256	0,62
9	11	11.342.081.969.774.500	4	0,22
10	11	1.147.190.609.168.980	1	0,10
17	11	11.691.651.451.539.500	36	0,35
53	11	11.762.424.800.643.300	1764	0,79
55	12	12.875.927.404.265.000	1849	0,78
25	13	13.036.109.919.906.900	144	0,48
18	13	1.335.959.324.502.920	25	0,28
63	13	1.337.614.679.175.480	2500	0,79
21	13	13.457.436.459.159.700	64	0,38
6	13	13.580.606.766.289.700	49	1,17
8	13	1.371.316.448.996.980	25	0,63
9	13	13.788.509.414.499.100	16	0,44
26	13	13.922.260.430.588.900	169	0,50
16	14	14.290.668.205.631.300	4	0,13
9	14	14.461.144.711.826.400	25	0,56
8	14	14.461.144.711.826.400	36	0,75
8	14	14.487.125.402.359.000	36	0,75
12	14	14.526.355.051.654.000	4	0,17
10	14	14.556.874.909.939.900	16	0,40
6	14	14.662.727.637.446.900	64	1,33
26	14	1.472.665.707.745.410	144	0,46
27	14	1.483.744.939.441.850	169	0,48
9	14	14.956.420.636.493.200	25	0,56
19	14	14.981.249.214.321.100	25	0,26
47	15	15.022.420.581.249.000	1024	0,68
9	15	1.508.377.105.865.930	36	0,67
9	15	15.220.437.063.394.400	36	0,67
17	15	15.446.204.492.854.800	4	0,12
13	15	154.572.956.709.847	4	0,15
17	15	15.540.444.306.666.700	4	0,12
6	15	15.676.095.392.641.900	81	1,50
9	15	15.824.001.367.332.200	36	0,67
11	16	16.134.712.930.541.100	25	0,45
17	16	1.616.578.825.780.090	1	0,06
56	16	16.249.737.095.883.700	1600	0,71
14	16	16.357.307.484.983.400	4	0,14
10	16	16.492.478.230.821.900	36	0,60
10	16	16.842.034.736.178.500	36	0,60
14	16	16.850.238.728.265.600	4	0,14
8	17	17.085.546.873.246.600	81	1,13
28	17	17.281.145.372.651.000	121	0,39
24	17	17.359.704.877.407.000	49	0,29
6	17	17.451.667.712.268.800	121	1,83
20	17	17.584.646.773.909.400	9	0,15
12	17	17.988.729.725.820.800	25	0,42
15	18	18.166.908.667.304.300	9	0,20

11	18	18.179.745.245.324.800	49	0,64
11	18	18.179.745.245.324.800	49	0,64
14	18	18.180.768.540.369.800	16	0,29
14	18	18.298.954.302.458.800	16	0,29
18	18	18.344.498.303.593.100	0	0,00
7	18	18.365.259.383.364.800	121	1,57
19	18	18.687.685.556.445.600	1	0,05
13	18	1.869.824.090.112.300	25	0,38
9	18	1.869.824.090.112.300	81	1,00
25	18	18.791.418.090.456.000	49	0,28
13	18	18.855.041.096.764.200	25	0,38
9	19	19.153.060.841.007.800	100	1,11
26	19	19.469.302.794.266.100	49	0,27
24	19	19.657.946.296.458.600	25	0,21
36	19	1.990.350.920.630.410	289	0,47
20	20	20.116.063.191.118.900	0	0,00
8	20	2.018.209.580.414.100	144	1,50
46	20	20.206.713.699.782.300	676	0,57
48	20	20.241.132.136.186.600	784	0,58
37	20	20.253.583.994.238.600	289	0,46
9	20	20.435.195.781.946.600	121	1,22
40	20	20.549.052.596.709.100	400	0,50
10	20	20.577.672.870.116.800	100	1,00
15	20	2.065.258.541.374.430	25	0,33
12	20	2.070.504.166.798.630	64	0,67
36	20	20.807.398.249.825.700	256	0,44
35	20	20.810.502.260.106.700	225	0,43
13	20	20.874.174.327.076.500	49	0,54
22	20	20.984.189.190.014.400	4	0,09
18	20	20.995.780.085.561.000	4	0,11
22	21	21.005.287.113.912.200	1	0,05
7	21	21.063.539.740.232.200	196	2,00
26	21	21.085.777.768.854.900	25	0,19
15	21	2.129.781.249.563.270	36	0,40
20	21	21.311.465.875.384.900	1	0,05
10	21	21.559.862.355.767.700	121	1,10
22	21	2.185.241.479.849.870	1	0,05
15	21	2.188.526.546.087.430	36	0,40
19	22	22.057.688.973.016.500	9	0,16
10	22	22.205.213.414.000.700	144	1,20
22	22	22.206.969.853.613.800	0	0,00
30	22	22.345.014.163.244.200	64	0,27
15	22	2.239.338.265.376.820	49	0,47
17	22	22.671.018.011.501.400	25	0,29
7	23	2.302.646.314.439.430	256	2,29
19	23	2.322.882.406.251.510	16	0,21
11	23	2.324.235.098.488.820	144	1,09
28	23	23.353.692.455.408.000	25	0,18
15	23	23.472.110.191.646.400	64	0,53
16	23	2.357.135.114.163.490	49	0,44
9	23	2.371.113.787.025.050	196	1,56
9	24	24.097.194.342.866.600	225	1,67
10	24	24.281.937.082.850.100	196	1,40
12	24	24.503.490.715.567.500	144	1,00
22	24	24.673.150.653.432.100	4	0,09

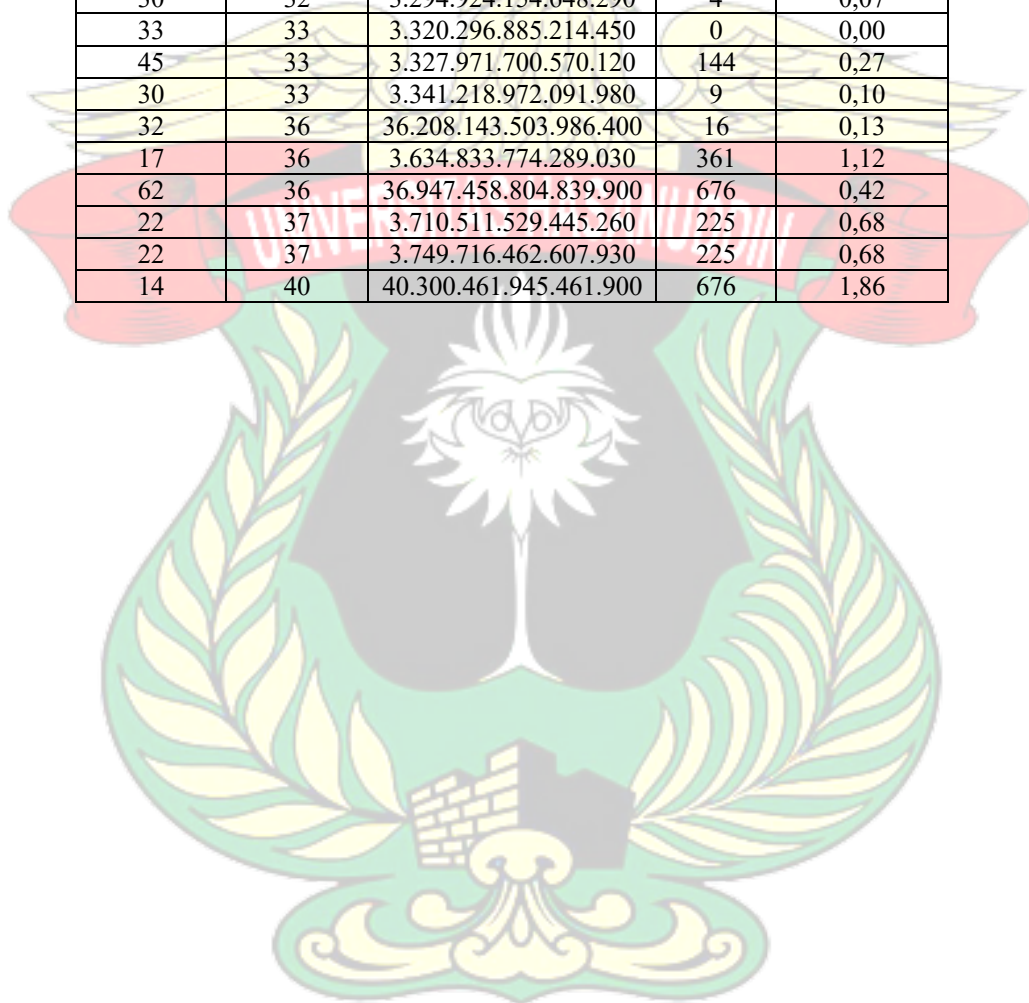
10	24	24.737.718.116.184.100	196	1,40
14	24	24.894.916.694.132.000	100	0,71
19	26	26.324.281.712.212.100	49	0,37
7	26	26.683.147.702.309.700	361	2,71
11	26	26.739.844.406.578.300	225	1,36
33	26	26.785.100.193.440.700	49	0,21
14	27	2.722.842.115.107.920	169	0,93
60	27	2.766.443.116.562.510	1089	0,55
29	27	2.795.850.948.427.710	4	0,07
24	28	28.360.994.126.090.000	16	0,17
19	28	28.519.802.857.926.600	81	0,47
20	28	2.853.574.504.480.790	64	0,40
13	28	28.600.471.577.934.500	225	1,15
21	29	29.261.793.442.150.000	64	0,38
30	29	2.993.864.873.579.820	1	0,03
22	30	30.812.044.945.226.900	64	0,36
21	31	31.238.964.179.547.200	100	0,48
31	31	3.135.557.235.210.190	0	0,00
17	32	3.268.521.208.375.560	225	0,88
22	33	3.321.908.744.048.850	121	0,50
14	36	3.637.945.448.780.450	484	1,57
45	37	37.126.240.675.368.900	64	0,18
62	37	3.742.509.806.161.330	625	0,40
32	37	3.758.970.638.038.200	25	0,16
30	38	3.839.876.509.871.470	64	0,27



Model ANN 1 Neuron				
Realization	Prediction	Prediction fr RM	SE	AE
63	9	9.513.276.638.484.410	2916	0,86
21	9	9.520.116.587.804.210	144	0,57
11	10	10.378.085.221.504.800	1	0,09
11	10	10.378.085.221.504.800	1	0,09
22	10	10.762.634.644.124.100	144	0,55
23	11	11.832.064.515.588.300	144	0,52
12	11	11.932.951.333.434.100	1	0,08
6	12	12.217.996.150.095.800	36	1,00
55	12	12.573.292.055.746.000	1849	0,78
15	12	12.595.768.171.221.700	9	0,20
25	12	12.970.393.356.518.400	169	0,52
48	13	13.179.621.146.562.400	1225	0,73
19	13	13.248.141.367.577.300	36	0,32
8	13	13.256.293.843.777.000	25	0,63
17	13	13.258.288.201.670.200	16	0,24
13	13	13.287.801.296.771.100	0	0,00
16	13	13.485.130.729.110.800	9	0,19
26	13	13.887.130.592.068.300	169	0,50
9	14	14.232.241.590.939.800	25	0,56
10	14	14.580.144.810.260.900	16	0,40
12	14	1.463.117.869.494.890	4	0,17
13	14	1.488.266.987.874.520	1	0,08
6	15	15.010.363.800.056.300	81	1,50
6	15	15.049.148.745.105.700	81	1,50
26	15	15.262.394.091.175.400	121	0,42
9	15	15.337.542.531.019.600	36	0,67
12	15	15.581.703.677.563.500	9	0,25
9	15	15.602.496.516.917.700	36	0,67
25	15	15.724.696.763.539.700	100	0,40
18	16	16.063.224.549.486.200	4	0,11
11	16	1.640.483.057.078.450	25	0,45
8	16	16.450.084.971.877.700	64	1,00
10	16	1.650.327.422.712.970	36	0,60
12	16	16.603.722.183.892.800	16	0,33
15	16	16.894.700.673.319.600	1	0,07
9	17	17.259.598.692.326.300	64	0,89
13	17	1.751.126.484.495.700	16	0,31
6	17	17.605.953.485.096.000	121	1,83
46	17	1.782.670.825.503.730	841	0,63
14	17	1.797.326.853.991.240	9	0,21
19	18	18.209.923.401.205.500	1	0,05
7	18	18.315.971.799.087.200	121	1,57
13	18	18.407.539.882.708.400	25	0,38
9	18	18.407.539.882.708.400	81	1,00
20	18	1.862.294.343.784.290	4	0,10
29	18	18.716.433.699.666.900	121	0,38
14	18	18.825.548.379.035.200	16	0,29
24	18	18.848.921.964.952.100	36	0,25
9	18	18.944.507.569.235.500	81	1,00
7	18	18.944.507.569.235.500	121	1,57
26	18	18.944.507.569.235.500	64	0,31
10	19	19.003.603.059.151.800	81	0,90
26	19	1.902.684.825.029.620	49	0,27

15	19	19.400.562.314.002.600	16	0,27
53	19	19.573.467.560.168.900	1156	0,64
17	20	20.063.296.175.967.800	9	0,18
9	20	20.079.069.206.402.300	121	1,22
21	20	2.023.629.658.596.590	1	0,05
24	20	20.323.125.643.710.300	16	0,17
6	20	20.454.015.175.002.000	196	2,33
9	20	20.456.887.387.626.700	121	1,22
36	20	2.056.629.844.888.180	256	0,44
9	20	20.619.061.795.700.600	121	1,22
8	20	20.619.061.795.700.600	144	1,50
15	20	20.689.953.074.496.800	25	0,33
8	20	207.117.110.309.157	144	1,50
36	21	2.118.142.669.572.830	225	0,42
14	21	21.265.132.733.031.000	49	0,50
9	21	21.274.300.083.805.900	144	1,33
13	21	215.419.865.764.012	64	0,62
9	21	21.581.009.061.339.000	144	1,33
10	21	21.620.814.329.397.100	121	1,10
27	21	2.177.367.420.197.080	36	0,22
15	21	2.198.646.303.875.990	36	0,40
8	22	22.014.880.226.911.000	196	1,75
17	22	22.113.454.362.017.000	25	0,29
13	22	2.216.523.321.456.810	81	0,69
47	22	2.237.323.279.874.540	625	0,53
17	22	2.241.125.746.518.660	25	0,29
28	22	22.569.663.227.146.100	36	0,21
9	22	22.627.230.458.972.100	169	1,44
7	22	22.749.317.506.674.500	225	2,14
20	22	22.944.710.990.025.100	4	0,10
11	23	2.302.992.576.694.640	144	1,09
10	23	23.039.149.613.054.300	169	1,30
10	23	23.213.969.471.352.900	169	1,30
14	23	2.329.255.658.862.630	81	0,64
10	23	2.333.089.437.367.920	169	1,30
22	23	23.360.720.481.721.800	1	0,05
22	23	2.374.508.949.337.620	1	0,05
16	23	23.794.125.886.989.000	49	0,44
18	23	23.984.906.789.214.100	25	0,28
7	23	2.398.589.274.454.630	256	2,29
9	24	24.329.378.460.204.900	225	1,67
15	24	24.386.985.612.336.600	81	0,60
14	24	2.440.986.960.618.140	100	0,71
11	24	2.443.460.983.629.790	169	1,18
20	24	2.455.092.453.818.660	16	0,20
30	24	2.473.101.440.252.620	36	0,20
56	24	24.734.736.138.465.100	1024	0,57
26	24	2.489.258.832.323.780	4	0,08
22	24	24.907.313.585.652.200	4	0,09
10	25	25.132.257.171.963.900	225	1,50
20	25	2.522.056.249.645.260	25	0,25
28	25	2.569.431.683.407.480	9	0,11
10	25	25.931.636.723.067.700	225	1,50
19	25	2.594.774.832.027.300	36	0,32
14	25	2.596.509.177.702.670	121	0,79

7	26	26.119.749.185.757.600	361	2,71
19	26	26.307.255.478.464.200	49	0,37
22	26	26.507.423.550.100.400	16	0,18
18	26	2.656.954.506.922.610	64	0,44
24	27	27.062.639.112.803.700	9	0,13
37	27	27.091.786.376.029.600	100	0,27
19	27	2.758.993.827.286.770	64	0,42
17	27	2.779.969.649.289.150	100	0,59
40	28	28.126.760.461.044.700	144	0,30
35	28	28.788.369.186.332.600	49	0,20
12	30	3.010.015.102.726.550	324	1,50
19	30	30.387.509.075.128.200	121	0,58
60	31	31.275.988.213.517.900	841	0,48
21	31	31.661.345.899.548.700	100	0,48
31	31	31.781.232.694.654.600	0	0,00
30	32	3.294.924.154.648.290	4	0,07
33	33	3.320.296.885.214.450	0	0,00
45	33	3.327.971.700.570.120	144	0,27
30	33	3.341.218.972.091.980	9	0,10
32	36	36.208.143.503.986.400	16	0,13
17	36	3.634.833.774.289.030	361	1,12
62	36	36.947.458.804.839.900	676	0,42
22	37	3.710.511.529.445.260	225	0,68
22	37	3.749.716.462.607.930	225	0,68
14	40	40.300.461.945.461.900	676	1,86



Lampiran 10 Data Model ANN pada Proses *Testing* Simulasi Awal

ANN W/ HIDDEN LAYER SIZE 9							ANN W/ HIDDEN LAYER SIZE 10						
Realization	Prediction	Prediction fr RM	SE	AE			Realization	Prediction	Prediction fr RM	SE	AE		
13	10	10.250.032.530.707.900	9	0,23			13	9	9.397.584.961.216.450	16	0,31		
8	10	10.250.032.530.707.900	4	0,25			13	10	1.032.655.092.482.830	9	0,23		
20	10	10.882.653.004.377.100	100	0,50			8	10	1.032.655.092.482.830	4	0,25		
13	11	11.510.464.533.709.900	4	0,15			15	11	11.102.018.154.545.600	16	0,27		
10	11	11.655.422.417.206.400	1	0,10			7	11	11.689.787.384.013.600	16	0,57		
11	11	11.705.374.899.236.100	0	0,00			10	14	14.593.922.430.939.800	16	0,40		
7	11	11.778.502.988.162.600	16	0,57			20	14	14.685.963.598.417.400	36	0,30		
19	11	11.858.422.266.504.000	64	0,42			11	14	1.498.273.764.529.540	9	0,27		
6	12	1.249.371.176.282.140	36	1,00			19	16	16.010.032.641.868.100	9	0,16		
13	12	1.273.545.591.951.740	1	0,08			17	16	16.464.075.974.349.900	1	0,06		
21	13	1.324.864.098.044.320	64	0,38			22	17	1.707.998.739.911.550	25	0,23		
12	13	13.496.149.811.957.800	1	0,08			21	17	17.426.163.556.241.500	16	0,19		
14	14	14.198.449.668.535.200	0	0,00			6	17	17.550.586.858.596.100	121	1,83		
19	14	1.441.580.067.710.770	25	0,26			13	17	17.742.259.382.588.500	16	0,31		
15	14	14.617.964.521.933.700	1	0,07			19	17	17.803.525.807.573.600	4	0,11		
17	14	1.475.569.179.535.810	9	0,18			16	18	18.706.908.868.263.700	4	0,13		
16	15	15.707.786.159.081.400	1	0,06			14	18	18.836.540.884.084.100	16	0,29		
22	15	15.900.975.029.993.500	49	0,32			18	19	19.289.615.149.691.700	1	0,06		
16	15	15.955.553.300.949.700	1	0,06			19	19	19.450.763.604.754.700	0	0,00		
18	16	16.085.375.250.214.500	4	0,11			6	19	19.557.082.583.109.000	169	2,17		
19	16	16.229.688.634.811.700	9	0,16			12	19	19.713.477.269.225.700	49	0,58		
22	16	16.892.145.905.457.400	36	0,27			20	20	20.149.051.219.619.500	0	0,00		
14	17	17.350.245.492.495.000	9	0,21			30	20	2.027.284.966.789.430	100	0,33		
13	17	1.783.339.320.172.120	16	0,31			14	20	20.289.333.368.040.400	36	0,43		
30	18	18.049.312.990.278.400	144	0,40			22	20	20.382.184.709.473.200	4	0,09		
20	18	18.625.486.408.173.800	4	0,10			13	20	2.074.562.845.272.010	49	0,54		
6	19	19.150.274.238.555.900	169	2,17			16	21	21.742.158.706.578.500	25	0,31		
28	19	19.762.814.098.239.900	81	0,32			25	21	2.194.013.808.844.630	16	0,16		
21	20	20.316.186.773.835.000	1	0,05			21	22	22.353.195.141.710.600	1	0,05		
25	20	2.033.698.107.767.770	25	0,20			28	23	23.253.500.760.006.900	25	0,18		
28	22	22.652.362.341.704.000	36	0,21			28	24	2.411.951.674.490.780	16	0,14		
29	26	2.658.718.572.143.800	9	0,10			29	25	25.056.864.517.339.300	16	0,14		
35	35	3.555.346.277.505.310	0	0,00			35	39	3.971.915.731.823.970	16	0,11		

ANN W/ HIDDEN LAYER SIZE 7							ANN W/ HIDDEN LAYER SIZE 8						
Realization	Prediction	Prediction fr RM	SE	AE			Realization	Prediction	Prediction fr RM	SE	AE		
13	6	61.309.448.649.716.800	49	0,54			13	6	670.714.307.559.496	49	0,54		
8	6	61.309.448.649.716.800	4	0,25			8	6	670.714.307.559.496	4	0,25		
7	7	7.659.208.259.073.460	0	0,00			7	7	7.272.557.519.937.300	0	0,00		
13	10	10.042.204.632.399.300	9	0,23			15	7	7.462.547.746.600.250	64	0,53		
11	10	10.243.583.043.089.600	1	0,09			10	10	101.617.017.401.387	0	0,00		
20	10	1.048.637.870.446.060	100	0,50			13	10	10.167.560.536.456.500	9	0,23		
19	10	10.974.779.018.455.000	81	0,47			6	10	10.982.675.009.530.400	16	0,67		
13	11	11.994.381.259.768.600	4	0,15			11	11	11.285.615.315.156.700	0	0,00		
12	12	12.035.211.223.859.100	0	0,00			20	11	11.623.646.387.087.300	81	0,45		
14	12	12.504.291.630.098.700	4	0,14			17	11	11.840.926.292.942.900	36	0,35		
15	12	12.548.424.161.063.400	9	0,20			19	12	1.216.674.596.182.010	49	0,37		
19	12	12.678.272.405.259.700	49	0,37			21	12	12.702.107.201.445.400	81	0,43		
16	12	12.680.963.537.930.100	16	0,25			13	13	13.011.654.112.448.800	0	0,00		
6	13	13.699.918.818.245.100	49	1,17			6	13	13.273.572.928.903.200	49	1,17		
14	13	13.760.419.739.208.700	1	0,07			19	13	13.622.796.705.304.400	36	0,32		
17	14	14.333.183.325.287.500	9	0,18			14	13	13.859.115.454.634.900	1	0,07		
10	14	1.450.191.201.358.110	16	0,40			13	13	13.879.824.595.419.100	0	0,00		
22	14	14.649.792.452.581.600	64	0,36			16	13	13.894.057.733.893.300	9	0,19		
22	14	14.837.793.275.373.000	64	0,36			12	14	14.070.791.879.938.000	4	0,17		
21	14	14.949.865.237.712.200	49	0,33			18	14	1.426.873.852.028.070	16	0,22		
20	15	15.024.453.520.258.000	25	0,25			20	14	1.438.310.838.228.650	36	0,30		
16	15	15.082.921.705.101.900	1	0,06			22	14	1.446.407.703.824.930	64	0,36		
18	15	15.515.144.317.649.000	9	0,17			22	15	154.775.980.928.991	49	0,32		
6	15	1.566.486.338.597.650	81	1,50			19	15	15.685.596.605.301.700	16	0,21		
13	16	1.624.388.564.449.410	9	0,23			25	15	15.745.576.801.612.800	100	0,40		
21	16	1.632.665.096.935.810	25	0,24			14	15	15.821.373.327.650.500	1	0,07		
19	16	16.958.407.030.398.900	9	0,16			28	16	1.609.598.771.889.230	144	0,43		
30	17	17.984.720.259.759.600	169	0,43			16	16	16.235.330.933.789.400	0	0,00		
25	18	1.831.668.441.031.020	49	0,28			21	16	16.802.727.723.034.500	25	0,24		
28	18	18.645.474.606.105.100	100	0,36			30	17	17.477.331.390.016.500	169	0,43		
28	21	219.597.153.747.209	49	0,25			28	19	19.689.401.849.535.600	81	0,32		
29	26	2.651.593.965.663.440	9	0,10			29	22	22.833.185.661.085.000	49	0,24		
35	43	43.507.134.751.248.900	64	0,23			35	40	4.085.423.663.788.260	25	0,14		

ANN W/ HIDDEN LAYER SIZE 5							ANN W/ HIDDEN LAYER SIZE 6						
Realization	Prediction	Prediction fr RM	SE	AE			Realization	Prediction	Prediction fr RM	SE	AE		
13	10	10.678.824.023.385.700	9	0,23			13	13	1.341.735.244.194.510	0	0,00		
8	10	10.678.824.023.385.700	4	0,25			8	13	1.341.735.244.194.510	25	0,63		
7	11	1.182.365.140.985.630	16	0,57			7	14	1.476.804.722.128.610	49	1,00		
13	13	13.381.206.278.342.100	0	0,00			13	15	15.946.865.590.373.900	4	0,15		
15	13	13.772.533.705.471.600	4	0,13			20	16	16.143.124.398.965.800	16	0,20		
20	14	14.363.536.360.070.700	36	0,30			11	16	1.675.464.941.325.940	25	0,45		
13	14	14.512.457.527.168.700	1	0,08			19	17	17.450.722.552.052.200	4	0,11		
11	14	14.699.192.461.762.500	9	0,27			13	17	1.759.592.831.477.980	16	0,31		
12	15	15.317.540.999.670.100	9	0,25			15	17	17.812.832.038.061.600	4	0,13		
10	15	1.549.279.032.527.050	25	0,50			6	18	18.304.092.780.846.700	144	2,00		
17	15	15.648.067.169.497.100	4	0,12			12	18	18.550.376.012.276.800	36	0,50		
6	15	15.664.265.651.955.900	81	1,50			14	18	18.664.533.855.422.400	16	0,29		
14	15	15.673.072.134.542.500	1	0,07			10	19	19.256.127.066.165.000	81	0,90		
16	15	15.951.734.438.599.100	1	0,06			19	19	19.310.194.597.866.700	0	0,00		
19	16	1.608.300.340.892.780	9	0,16			16	19	1.939.982.469.894.870	9	0,19		
14	16	16.100.423.999.331.600	4	0,14			14	19	19.614.984.116.301.500	25	0,36		
21	16	16.557.926.178.704.600	25	0,24			21	20	2.000.242.798.450.500	1	0,05		
19	17	1.791.233.541.360.540	4	0,11			22	20	20.202.832.004.038.800	4	0,09		
20	18	1.801.622.475.197.440	4	0,10			17	20	20.416.333.713.078.100	9	0,18		
6	18	1.803.323.249.339.590	144	2,00			22	20	2.063.796.805.352.460	4	0,09		
22	18	1.826.452.989.567.820	16	0,18			16	20	20.961.467.985.411.800	16	0,25		
22	18	18.458.373.839.003.400	16	0,18			18	21	2.149.731.295.418.340	9	0,17		
18	19	190.364.400.526.472	1	0,06			20	21	2.185.489.012.204.350	1	0,05		
16	19	1.912.907.323.600.360	9	0,19			6	22	22.540.795.071.902.200	256	2,67		
19	19	1.988.436.670.775.120	0	0,00			19	22	22.845.711.948.998.500	9	0,16		
13	20	2.060.555.491.672.930	49	0,54			25	23	23.976.616.073.856.900	4	0,08		
25	20	20.655.350.580.952.900	25	0,20			30	24	24.094.934.611.887.700	36	0,20		
30	21	21.795.268.607.932.100	81	0,30			28	24	24.515.315.852.570.800	16	0,14		
21	22	22.225.017.177.439.900	1	0,05			13	25	25.016.846.981.584.800	144	0,92		
28	22	22.297.117.247.239.100	36	0,21			21	25	25.484.203.075.064.900	16	0,19		
28	25	2.559.894.548.159.970	9	0,11			28	27	27.418.029.624.555.600	1	0,04		
29	28	28.295.761.520.183.600	1	0,03			29	32	3.240.124.989.261.710	9	0,10		
35	38	38.698.633.308.781.800	9	0,09			35	42	4.228.413.682.224.090	49	0,20		

ANN W/ HIDDEN LAYER SIZE 3					ANN W/ HIDDEN LAYER SIZE 4				
Realization	Prediction	Prediction fr RM	SE	AE	Realization	Prediction	Prediction fr RM	SE	AE
13	4	4.680.382.562.034.760	81	0,69	13	6	6.158.351.855.236.530	49	0,54
13	5	5.301.727.072.553.740	64	0,62	8	6	6.158.351.855.236.530	4	0,25
8	5	5.301.727.072.553.740	9	0,38	7	7	7.890.599.492.699.670	0	0,00
7	6	6.728.835.662.495.970	1	0,14	13	8	8.912.122.829.959.350	25	0,38
20	7	7.338.203.492.667.950	169	0,65	20	11	11.328.519.794.745.100	81	0,45
11	7	7.877.472.323.760.830	16	0,36	11	11	11.416.252.193.479.700	0	0,00
19	8	899.628.829.646.645	121	0,58	19	12	12.416.960.203.959.700	49	0,37
10	10	1.012.380.925.735.380	0	0,00	14	12	1.243.514.960.040.530	4	0,14
13	10	10.150.706.751.355.600	9	0,23	10	13	13.185.062.401.358.200	9	0,30
15	10	10.254.831.368.436.600	25	0,33	13	13	13.389.581.417.644.500	0	0,00
12	11	11.230.203.095.908.400	1	0,08	15	13	13.408.328.707.273.800	4	0,13
17	11	11.350.589.151.544.200	36	0,35	17	13	1.396.190.893.782.030	16	0,24
14	11	1.194.710.966.328.800	9	0,21	12	14	14.291.675.090.340.300	4	0,17
19	12	1.220.928.114.437.430	49	0,37	14	14	14.364.294.606.572.900	0	0,00
21	12	12.429.592.131.929.800	81	0,43	21	14	1.467.217.657.648.080	49	0,33
6	12	12.823.192.778.520.300	36	1,00	19	14	14.728.419.268.751.400	25	0,26
16	12	12.993.414.202.373.700	16	0,25	16	14	14.816.644.616.508.000	4	0,13
22	13	1.319.577.489.633.110	81	0,41	6	15	1.577.571.247.924.640	81	1,50
14	14	14.686.594.124.921.700	0	0,00	18	15	1.593.570.001.053.290	9	0,17
22	14	14.835.199.689.014.900	64	0,36	22	16	1.693.427.116.121.210	36	0,27
30	15	15.226.122.971.246.900	225	0,50	22	17	17.014.707.721.982.000	25	0,23
13	15	1.543.349.951.965.260	4	0,15	13	17	17.124.209.967.602.500	16	0,31
19	15	15.435.550.082.615.100	16	0,21	16	17	1.723.728.835.999.980	1	0,06
18	16	16.331.713.157.260.200	4	0,11	20	18	18.277.797.872.361.800	4	0,10
16	16	1.664.449.200.129.390	0	0,00	6	18	18.709.270.805.015.200	144	2,00
6	17	17.184.073.842.665.900	121	1,83	30	19	19.797.674.189.727.700	121	0,37
20	17	17.201.130.525.766.200	9	0,15	19	20	2.018.640.282.973.120	1	0,05
21	18	18.460.408.372.913.000	9	0,14	21	20	2.062.906.566.280.970	1	0,05
25	20	2.002.364.681.994.850	25	0,20	25	22	2.202.282.831.902.810	9	0,12
28	20	20.300.109.959.765.100	64	0,29	28	22	22.204.121.348.136.300	36	0,21
28	22	22.713.202.289.112.200	36	0,21	28	23	2.322.449.677.652.260	25	0,18
29	23	2.313.929.733.967.660	36	0,21	29	29	2.973.499.683.950.530	0	0,00
35	28	28.654.307.716.690.500	49	0,20	35	33	3.395.745.756.653.200	4	0,06

ANN W/ HIDDEN LAYER SIZE 1							ANN W/ HIDDEN LAYER SIZE 2						
Realization	Prediction	Prediction fr RM	SE	AE			Realization	Prediction	Prediction fr RM	SE	AE		
13	16	1.686.746.779.739.730	9	0,23			13	7	7.754.949.457.281.330	36	0,46		
13	16	16.953.506.670.343.900	9	0,23			8	7	7.754.949.457.281.330	1	0,13		
8	16	16.953.506.670.343.900	64	1,00			7	9	9.152.430.557.245.810	4	0,29		
10	16	16.956.708.717.526.000	36	0,60			11	10	10.302.094.834.621.300	1	0,09		
7	17	17.432.116.604.012.500	100	1,43			20	10	10.371.076.160.425.300	100	0,50		
20	17	1.779.895.696.663.200	9	0,15			19	11	11.074.618.040.022.300	64	0,42		
15	17	17.851.406.167.903.700	4	0,13			13	11	11.223.881.168.554.700	4	0,15		
13	17	1.788.640.136.357.080	16	0,31			12	11	11.570.976.331.960.100	1	0,08		
21	18	180.199.958.226.308	9	0,14			13	11	11.955.205.411.697.200	4	0,15		
17	18	1.807.097.546.264.030	1	0,06			14	12	12.293.521.754.142.700	4	0,14		
11	18	18.090.439.893.572.000	49	0,64			16	12	12.908.544.172.480.800	16	0,25		
12	18	18.156.309.625.884.800	36	0,50			19	12	12.998.321.097.304.600	49	0,37		
19	18	18.515.962.708.524.800	1	0,05			15	13	1.304.854.695.237.450	4	0,13		
6	19	1.911.990.782.185.250	169	2,17			6	13	13.139.031.794.092.000	49	1,17		
14	19	19.225.338.095.591.000	25	0,36			14	13	13.241.842.303.551.600	1	0,07		
16	20	20.012.973.760.617.900	16	0,25			22	14	1.483.784.528.902.060	64	0,36		
19	20	2.014.338.675.620.810	1	0,05			16	14	14.989.507.370.787.900	4	0,13		
22	20	20.556.602.470.258.600	4	0,09			10	15	15.057.982.491.268.000	25	0,50		
22	20	2.064.301.860.892.380	4	0,09			17	15	15.322.524.583.405.500	4	0,12		
6	21	21.135.711.553.065.700	225	2,50			21	15	15.379.946.140.738.600	36	0,29		
16	21	2.127.936.366.970.340	25	0,31			20	15	15.463.435.038.487.000	25	0,25		
18	21	21.438.788.765.910.500	9	0,17			22	15	15.807.898.194.881.100	49	0,32		
20	22	22.067.301.688.028.100	4	0,10			6	16	16.002.994.337.467.700	100	1,67		
14	22	22.227.469.062.918.700	64	0,57			18	16	16.083.381.472.973.100	4	0,11		
19	22	22.283.180.627.351.000	9	0,16			13	16	163.054.310.477.599	9	0,23		
13	22	2.230.229.363.204.270	81	0,69			19	16	1.635.067.328.447.740	9	0,16		
30	22	2.285.434.895.697.320	64	0,27			21	16	16.835.633.293.336.300	25	0,24		
21	23	23.538.959.378.371.800	4	0,10			25	17	1.730.027.835.763.850	64	0,32		
25	25	25.074.828.976.030.400	0	0,00			28	18	18.742.701.816.514.800	100	0,36		
28	25	25.606.322.747.169.100	9	0,11			30	19	19.148.845.085.461.300	121	0,37		
28	26	26.153.396.702.806.500	4	0,07			28	20	20.330.658.245.609.900	64	0,29		
29	29	29.465.068.938.973.000	0	0,00			29	26	2.658.931.769.518.230	9	0,10		
35	39	3.946.237.088.441.650	16	0,11			35	39	3.914.737.371.473.350	16	0,11		

Lampiran 11 Data Model ANN pada Proses *Testing* Hasil Simulasi Optimasi Parameter

OPTIMUM ANN W/ HIDDEN LAYER SIZE 9							OPTIMUM ANN W/ HIDDEN LAYER SIZE 10						
Realizatio	Prediction	Prediction fr RM	SE	AE			Realizatio	Prediction	Prediction fr RM	SE	AE		
13	3	39.151.932.898.192.100	100	0,77			13	11	11.923.950.053.353.600	4	0,15		
8	3	39.151.932.898.192.100	25	0,63			8	11	11.923.950.053.353.600	9	0,38		
13	5	5.780.619.514.368.740	64	0,62			13	12	12.482.514.113.842.600	1	0,08		
7	6	6.544.474.809.260.320	1	0,14			7	13	13.477.919.684.969.800	36	0,86		
14	8	813.082.572.172.123	36	0,43			14	13	13.925.352.398.869.700	1	0,07		
11	8	8.841.601.892.142.070	9	0,27			15	15	15.336.581.693.253.500	0	0,00		
20	9	9.022.705.882.521.140	121	0,55			10	15	15.540.981.147.494.800	25	0,50		
19	9	9.208.069.886.195.550	100	0,53			20	15	15.704.072.379.614.100	25	0,25		
15	9	958.760.325.233.202	36	0,40			11	15	15.951.882.738.777.200	16	0,36		
13	9	9.995.722.619.705.560	16	0,31			19	16	16.407.420.018.264.900	9	0,16		
13	10	10.038.254.068.824.200	9	0,23			21	16	16.822.457.816.037.500	25	0,24		
10	10	10.225.660.464.597.500	0	0,00			18	17	17.06.071.755.997.570	1	0,06		
12	10	10.294.778.470.668.500	4	0,17			17	17	17.200.247.831.586.900	0	0,00		
6	10	10.707.534.670.220.900	16	0,67			13	17	17.23.778.054.295.680	16	0,31		
14	10	10.817.182.881.712.300	16	0,29			19	17	17.410.451.557.436.900	4	0,11		
19	10	10.963.699.796.851.400	81	0,47			14	17	17.817.093.549.475.200	9	0,21		
21	11	11.183.866.804.607.800	100	0,48			16	17	17.90.667.934.783.450	1	0,06		
22	11	11.400.936.088.023.800	121	0,50			22	18	18.034.975.806.822.700	16	0,18		
17	11	1.145.251.900.887.650	36	0,35			12	18	18.369.715.265.808.700	36	0,50		
16	11	11.545.498.966.404.000	25	0,31			22	19	19.222.959.663.076.160	9	0,14		
16	11	11.664.362.165.358.100	25	0,31			16	19	19.328.134.158.743.000	9	0,19		
6	12	1.203.806.445.044.450	36	1,00			6	19	19.380.003.139.066.900	169	2,17		
30	12	12.097.596.811.158.700	324	0,60			20	19	19.540.263.586.393.000	1	0,05		
19	12	12.262.032.282.960.000	49	0,37			6	20	2.005.808.623.586.510	196	2,33		
20	12	12.498.812.693.945.400	64	0,40			13	20	20.838.458.782.506.500	49	0,54		
18	12	127.178.939.524.578	36	0,33			21	21	2.189.934.241.255.820	0	0,00		
22	12	1.278.072.292.128.170	100	0,45			19	22	2.256.255.183.815.410	9	0,16		
28	14	14.041.796.924.550.900	196	0,50			30	22	22.725.093.864.295.700	64	0,27		
21	14	14.298.729.380.140.800	49	0,33			25	23	23.467.813.858.106.000	4	0,08		
25	16	1.665.706.741.667.050	81	0,36			28	24	2.444.393.262.051.460	16	0,14		
28	20	20.129.931.189.434.100	64	0,29			28	25	25.600.655.025.130.300	9	0,11		
29	21	21.554.493.304.579.000	64	0,28			29	32	3.209.137.423.147.030	9	0,10		
35	28	28.693.466.268.287.500	49	0,20			35	40	40.418.829.479.243.800	25	0,14		

OPTIMUM ANN W/ HIDDEN LAYER SIZE 7							
Realizatic	Prediction	Prediction fr RM	SE	AE			
13	2	29.190.114.625.535.200	121	0,85			
7	7	795.562.735.021.991	0	0,00			
13	8	8.191.189.865.546.680	25	0,38			
8	8	8.191.189.865.546.680	0	0,00			
20	9	9.508.207.086.780.930	121	0,55			
11	9	9.928.180.331.143.260	4	0,18			
19	10	10.574.060.741.428.000	81	0,47			
22	10	1.085.927.157.705.250	144	0,55			
15	12	12.159.149.921.797.200	9	0,20			
17	12	12.369.621.246.672.800	25	0,29			
19	12	12.808.480.550.006.200	49	0,37			
10	12	12.811.825.906.014.400	4	0,20			
13	12	12.975.254.788.303.300	1	0,08			
21	13	13.525.189.738.233.600	64	0,38			
14	13	13.601.993.468.438.500	1	0,07			
18	13	13.714.584.694.166.900	25	0,28			
16	13	13.818.091.165.627.100	9	0,19			
12	13	13.847.523.402.992.600	1	0,08			
22	14	14.013.120.366.367.900	64	0,36			
16	14	14.644.818.354.923.300	4	0,13			
6	14	14.700.800.556.191.500	64	1,33			
30	14	14.787.024.542.450.800	256	0,53			
6	15	15.315.837.112.595.900	81	1,50			
20	15	15.557.113.545.802.600	25	0,25			
21	16	1.678.194.025.341.350	25	0,24			
14	16	16.882.174.905.220.400	4	0,14			
19	17	17.490.887.792.404.700	4	0,11			
13	17	17.602.766.177.767.800	16	0,31			
28	17	17.669.633.260.814.300	121	0,39			
25	20	20.087.427.143.735.600	25	0,20			
28	23	23.344.787.176.331.300	25	0,18			
29	24	24.970.871.651.258.100	25	0,17			
35	36	3.690.690.719.562.050	1	0,03			

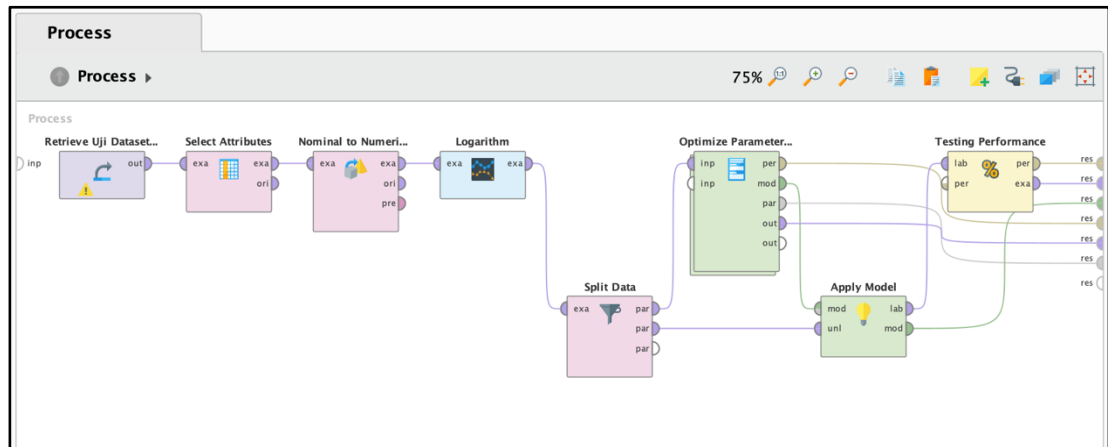
OPTIMUM ANN W/ HIDDEN LAYER SIZE 8							
realizatic	Prediction	Prediction fr RM	SE	AE			
13	1	18.587.958.702.025.300	144	0,92			
13	5	52.224.219.661.781.600	64	0,62			
8	5	52.224.219.661.781.600	9	0,38			
7	5	5.709.448.040.369.940	4	0,29			
20	7	7.114.712.852.604.440	169	0,65			
11	7	73.759.875.540.051.700	16	0,36			
19	7	7.912.967.958.121.760	144	0,63			
15	8	8.755.592.625.011.790	49	0,47			
22	9	9.157.480.819.501.760	169	0,59			
10	9	979.698.010.153.162	1	0,10			
19	9	9.798.534.578.033.120	100	0,53			
17	9	9.824.072.683.297.950	64	0,47			
13	10	10.091.539.713.121.600	9	0,23			
14	10	1.059.096.733.823.740	16	0,29			
21	10	10.668.217.370.115.500	121	0,52			
12	10	10.748.656.584.235.400	4	0,17			
6	10	10.787.264.990.843.500	16	0,67			
16	11	11.056.472.097.963.400	25	0,31			
22	11	11.097.564.980.792.500	121	0,50			
30	11	11.188.216.050.556.200	361	0,63			
16	11	11.675.471.441.393.500	25	0,31			
18	11	1.168.054.184.921.260	49	0,39			
6	11	11.953.590.614.243.100	25	0,83			
20	12	12.034.749.903.253.200	64	0,40			
14	12	12.166.651.670.397.400	4	0,14			
19	12	12.438.972.320.375.500	49	0,37			
21	12	12.627.379.752.575.100	81	0,43			
13	13	13.892.044.412.517.800	0	0,00			
28	16	16.994.075.715.506.500	144	0,43			
25	17	17.355.656.219.603.100	64	0,32			
29	18	1.868.423.519.720.100	121	0,38			
28	20	20.382.033.014.813.300	64	0,29			
35	38	3.830.345.844.111.980	9	0,09			

OPTIMUM ANN W/ HIDDEN LAYER SIZE 5					OPTIMUM ANN W/ HIDDEN LAYER SIZE 6				
Realizatio	Prediction	Prediction fr RM	SE	AE	Realizatio	Prediction	Prediction fr RM	SE	AE
13	9	9.095.660.033.986.090	16	0,31	13	10	10.717.501.949.931.600	9	0,23
8	9	9.095.660.033.986.090	1	0,13	8	10	10.717.501.949.931.600	4	0,25
7	11	11.617.674.010.490.100	16	0,57	13	11	11.856.820.123.467.400	4	0,15
13	13	1.306.969.665.070.350	0	0,00	7	12	12.899.615.700.562.800	25	0,71
10	15	15.201.200.521.175.100	25	0,50	20	15	15.138.605.798.680.500	25	0,25
14	15	15.466.000.924.193.700	1	0,07	15	15	15.281.971.915.310.800	0	0,00
17	15	15.541.992.763.559.100	4	0,12	11	15	15.377.726.557.913.900	16	0,36
15	16	16.624.263.075.157.000	1	0,07	10	15	15.967.442.975.600.200	25	0,50
20	16	1.683.908.222.767.950	16	0,20	19	16	16.259.336.440.677.700	9	0,16
11	17	1.706.125.563.178.640	36	0,55	14	16	16.907.182.078.573.200	4	0,14
21	17	1.728.972.582.797.110	16	0,19	17	17	1.767.192.061.475.270	0	0,00
13	17	1.736.373.126.795.540	16	0,31	6	17	17.687.828.145.799.700	121	1,83
19	18	1.851.157.837.430.890	1	0,05	13	17	1.782.138.168.884.460	16	0,31
16	18	1.868.509.013.030.770	4	0,13	21	18	1.829.689.520.674.340	9	0,14
14	18	18.838.916.752.484.400	16	0,29	19	18	1.836.148.877.696.200	1	0,05
6	19	19.047.782.157.935.400	169	2,17	14	18	18.490.509.969.281.500	16	0,29
13	19	1.925.019.755.653.510	36	0,46	18	18	1.895.448.418.005.970	0	0,00
12	19	19.382.550.715.857.900	49	0,58	16	19	19.047.066.823.540.800	9	0,19
18	19	19.746.188.165.959.900	1	0,06	12	19	19.089.334.958.204.900	49	0,58
20	19	19.936.488.804.336.300	1	0,05	13	19	1.934.215.275.653.270	36	0,46
19	20	20.209.747.576.192.700	1	0,05	22	19	1.962.675.154.389.460	9	0,14
6	20	20.769.539.284.629.100	196	2,33	19	19	19.966.885.905.226.100	0	0,00
22	20	20.978.611.651.597.900	4	0,09	22	20	20.166.746.154.710.400	4	0,09
16	21	21.680.900.401.974.000	25	0,31	20	20	20.276.817.609.186.200	0	0,00
19	21	21.971.923.174.296.500	4	0,11	6	20	20.644.745.483.379.600	196	2,33
22	22	2.222.022.495.776.080	0	0,00	16	20	20.781.186.010.883.300	16	0,25
25	22	22.576.179.351.172.400	9	0,12	30	21	2.169.629.251.521.840	81	0,30
30	22	22.997.202.987.392.000	64	0,27	25	22	22.261.400.797.205.700	9	0,12
28	23	23.250.443.065.566.800	25	0,18	21	23	23.265.732.074.503.000	4	0,10
28	25	2.507.082.216.634.310	9	0,11	28	23	2.338.058.283.644.850	25	0,18
21	25	25.140.991.797.241.600	16	0,19	28	25	2.557.658.136.258.400	9	0,11
29	28	28.448.332.566.457.500	1	0,03	29	28	28.322.148.949.024.100	1	0,03
35	36	3.661.643.273.752.000	1	0,03	35	40	4.029.807.278.959.710	25	0,14

OPTIMUM ANN W/ HIDDEN LAYER SIZE 3							OPTIMUM ANN W/ HIDDEN LAYER SIZE 4						
Realizatic	Prediction	Prediction fr RM	SE	AE			Realizatic	Prediction	Prediction fr RM	SE	AE		
7	27	27.967.550.052.260.900	400	2,86			13	12	1.274.598.142.330.150	1	0,08		
13	27	2.797.461.128.079.620	196	1,08			8	12	1.274.598.142.330.150	16	0,50		
8	27	2.797.461.128.079.620	361	2,38			14	13	13.151.543.521.395.500	1	0,07		
13	28	28.067.518.801.860.300	225	1,15			13	13	13.954.975.536.504.500	0	0,00		
20	28	28.334.927.065.309.700	64	0,40			10	14	14.435.495.104.523.100	16	0,40		
11	28	2.837.212.638.209.670	289	1,55			20	14	14.650.269.397.741.800	36	0,30		
13	28	28.382.947.520.705.700	225	1,15			7	14	14.704.176.911.962.200	49	1,00		
17	28	2.842.918.218.006.970	121	0,65			11	15	1.525.267.878.536.800	16	0,36		
19	28	28.610.310.577.954.900	81	0,47			15	15	15.623.484.005.391.800	0	0,00		
12	28	28.618.315.983.043.600	256	1,33			19	15	1.580.194.514.171.010	16	0,21		
14	28	28.721.824.340.234.900	196	1,00			6	16	16.529.319.682.559.600	100	1,67		
10	28	28.794.676.750.616.300	324	1,80			21	16	1.654.575.686.596.660	25	0,24		
21	28	28.884.271.338.376.800	49	0,33			13	16	16.713.783.711.429.200	9	0,23		
16	28	28.915.934.360.810.200	144	0,75			14	17	17.206.798.947.816.700	9	0,21		
19	29	2.918.732.188.795.780	100	0,53			12	17	17.418.972.103.061.000	25	0,42		
22	29	29.281.723.364.657.900	49	0,32			18	17	1.746.206.538.342.700	1	0,06		
15	29	29.289.268.685.012.000	196	0,93			17	17	17.559.631.981.782.800	0	0,00		
22	29	2.929.557.333.011.110	49	0,32			19	17	17.665.686.858.026.500	4	0,11		
16	29	29.527.991.473.937.800	169	0,81			16	18	18.269.199.818.026.900	4	0,13		
6	29	2.974.139.145.490.410	529	3,83			16	19	19.801.915.541.047.900	9	0,19		
18	29	2.994.833.565.786.980	121	0,61			19	19	1.983.888.636.394.450	0	0,00		
13	30	3.035.964.133.709.690	289	1,31			22	19	19.842.608.214.124.100	9	0,14		
30	30	3.045.974.049.194.800	0	0,00			22	20	20.126.219.776.519.800	4	0,09		
14	30	3.047.194.096.406.840	256	1,14			20	20	2.060.493.603.111.940	0	0,00		
20	30	3.048.109.942.892.970	100	0,50			13	20	20.625.981.118.415.400	49	0,54		
6	30	3.077.407.756.153.010	576	4,00			6	21	2.114.601.823.797.130	225	2,50		
21	31	31.258.799.289.392.800	100	0,48			25	21	21.461.238.893.145.700	16	0,16		
19	31	31.729.936.641.294.300	144	0,63			28	22	2.254.560.856.165.120	36	0,21		
25	33	3.387.969.508.621.020	64	0,32			30	23	2.309.885.461.017.320	49	0,23		
28	34	3.422.632.914.824.530	36	0,21			21	23	23.543.045.683.970.100	4	0,10		
28	36	36.915.328.171.467.700	64	0,29			28	24	24.034.333.369.326.100	16	0,14		
29	39	3.904.445.876.970.320	100	0,34			29	30	3.085.308.522.128.420	1	0,03		
35	42	42.528.992.200.437.600	49	0,20			35	37	3.715.533.019.958.930	4	0,06		

OPTIMUM ANN W/ HIDDEN LAYER SIZE 1					OPTIMUM ANN W/ HIDDEN LAYER SIZE 2				
Realizatio	Prediction	Prediction fr RM	SE	AE	Realizatio	Prediction	Prediction fr RM	SE	AE
13	16	16.302.952.290.509.900	9	0,23	13	11	11.256.256.192.432.400	4	0,15
8	16	16.302.952.290.509.900	64	1,00	8	11	11.256.256.192.432.400	9	0,38
13	16	16.543.013.293.490.300	9	0,23	13	11	11.475.543.196.550.200	4	0,15
7	16	16.980.009.052.546.200	81	1,29	20	11	11.854.892.523.639.600	81	0,45
10	17	17.121.415.735.209.100	49	0,70	11	12	12.378.058.828.932.300	1	0,09
20	17	1.761.756.052.612.120	9	0,15	19	12	12.724.657.855.225.800	49	0,37
17	17	17.725.113.855.269.900	0	0,00	7	13	13.039.267.878.682.000	36	0,86
11	18	1.803.287.125.368.260	49	0,64	10	14	14.072.066.895.923.200	16	0,40
13	18	1.811.436.190.140.490	25	0,38	13	14	1.494.171.732.589.760	1	0,08
12	18	1.834.279.220.907.750	36	0,50	19	15	15.201.011.673.957.300	16	0,21
21	18	18.512.749.334.867.400	9	0,14	12	15	1.526.781.881.257.720	9	0,25
19	18	18.676.428.859.131.300	1	0,05	14	15	15.456.221.373.687.600	1	0,07
15	18	1.898.946.371.366.260	9	0,20	14	15	15.752.005.402.901.900	1	0,07
6	19	19.105.758.831.990.800	169	2,17	21	15	15.814.128.786.557.300	36	0,29
14	19	19.427.362.412.463.700	25	0,36	15	16	16.343.617.406.583.100	1	0,07
16	20	2.004.324.973.482.790	16	0,25	6	16	1.672.351.400.454.580	100	1,67
19	20	20.612.865.448.579.100	1	0,05	18	16	1.690.998.699.434.460	4	0,11
14	20	20.967.015.163.357.600	36	0,43	16	17	1.710.619.376.261.130	1	0,06
13	21	21.550.470.474.557.800	64	0,62	17	17	17.237.249.488.937.900	0	0,00
22	21	21.562.578.578.932.600	1	0,05	16	18	18.072.242.967.239.100	4	0,13
18	21	21.984.758.594.303.500	9	0,17	22	18	18.132.981.181.453.700	16	0,18
19	22	22.084.169.407.306.300	9	0,16	22	18	185.475.109.418.038	16	0,18
22	22	2.212.490.239.502.070	0	0,00	13	19	19.290.976.207.619.100	36	0,46
16	22	22.301.854.124.639.600	36	0,38	19	19	19.666.191.665.173.500	0	0,00
30	22	22.432.429.521.120.600	64	0,27	20	21	21.136.787.271.824.000	1	0,05
6	22	22.705.977.267.715.300	256	2,67	21	21	2.138.774.072.085.660	0	0,00
20	23	23.021.587.031.719.600	9	0,15	30	21	2.144.630.902.623.650	81	0,30
25	24	2.475.112.676.638.950	1	0,04	6	21	21.885.709.014.095.800	225	2,50
21	24	24.845.341.116.560.200	9	0,14	28	22	22.195.072.411.193.700	36	0,21
28	25	25.234.540.536.174.500	9	0,11	25	22	22.773.492.363.962.900	9	0,12
28	25	2.585.526.214.567.270	9	0,11	28	25	25.396.006.517.657.100	9	0,11
29	29	29.037.394.692.347.200	0	0,00	29	29	2.988.607.664.086.450	0	0,00
35	35	35.434.090.929.218.700	0	0,00	35	34	34.027.134.095.935.000	1	0,03

Lampiran 12 Skema Implementasi *Data Mining* Menggunakan *RapidMiner Studio 2* (Simulasi Optimasi Parameter Model ANN)



Lampiran 13 Skema Implementasi *Data Mining* Menggunakan *RapidMiner Studio 2* (Simulasi Awal Model ANN)

