$$R' = \frac{R}{255},\ G' = \frac{G}{255}\ ,\ B' = \frac{B}{255} \quad (2.1)$$

2. Menghitung nilai *Value* dan *X*

$$V = \max(r, g, b),\quad X = \min(r, g, b) \quad (2.2)$$

3. Menghitung nilai *Saturation*

$$S = \begin{cases} 0, & jika\ Value = 0 \\ \left(\frac{V - X}{V}\right), & jika\ lainnya \end{cases} \quad (2.3)$$

4. Menghitung nilai *r, g, b*

$$r = \frac{V - R'}{V - X}\ ;\ g = \frac{V - G'}{V - X}\ ;\ b = \frac{V - B'}{V - X} \quad (2.4)$$

5. Menghitung nilai *Hue*

$$H = \begin{Bmatrix} R' = V\ then\ G = X, H = 5 + b, G \neq X, 1 - g \\ G' = V\ then\ B = X, H = 1 + r, B \neq X, 3 - b \\ B' = V\ then\ R = X, H = 3 + g, R \neq X, 5 - r \end{Bmatrix} \quad (2.5)$$

6. Normalisasi nilai *Hue*

$$H = \frac{H}{6} \quad (2.6)$$

Keterangan :

S	: nilai *Saturation*
V	: nilai *Value*
H	: nilai *Hue*
X	: nilai minimum dari normalisasi *RGB*.
R,G,B	: nilai kanal warna *red* (merah), *green* (hijau), *blue* (biru)
R',G',B'	: nilai kanal warna *red* (merah), *green* (hijau), *blue* (biru) dalam rentan [0,1]
r,g,b	: nilai kanal warna *red* (merah), *green* (hijau), *blue* (biru) ternormalisasi

LAMPIRAN

Lampiran 1 Berita Acara

BERITA ACARA
RAPAT PUSAKA HIMATIF

Tanggal : 08/02/2024

Tempat : Pusaka Himatif

Dihadiri oleh:

Herlando Prayitno	Ketua
Mohammad Ridwan Bayu Pratama	Sekretaris
Barqiyah Tiara Putri	Anggota
Erna Dwita Sari Cahyani Putri	Anggota
Ainul Faradisa	Anggota
Nur Nafilah Rahim	Anggota
Al-ibhaam	Anggota

Agenda rapat

1. Penentuan jenis klasifikasi dan harganya
2. Penentuan daftar data dan jenisnya yang akan digunakan dalam penelitian klasifikasi dokumen berwarna

Hasil

1. Kelas dan harga disajikan dalam tabel berikut:

No	Kelas	Harga
1	Hitam	Rp.500
2	Warna Rendah	Rp.750
3	Warna Tinggi	Rp.1000

2. Daftar data yang ditentukan berjumlah 150, daftar data terlampir

Demikianlah berita acara ini dibuat dengan sebenarnya untuk digunakan sebagaimana mestinya.

Gresik, 08 Februari 2024

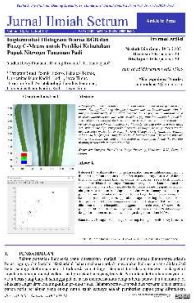
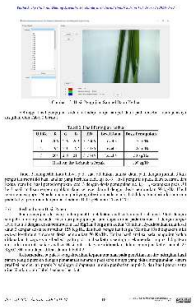
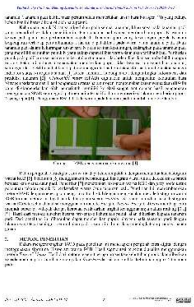
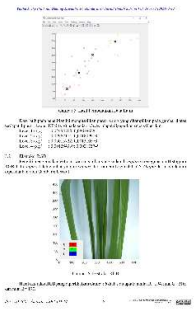
Ketua

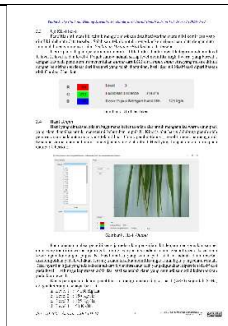
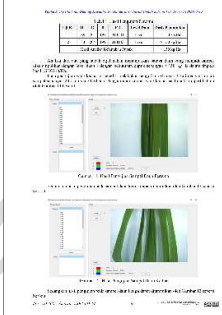
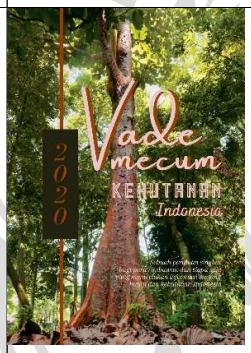
Herlando Prayitno

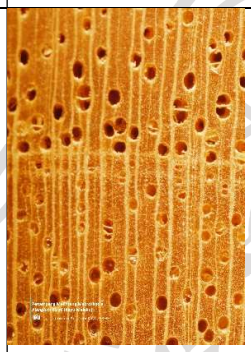
Sekretaris

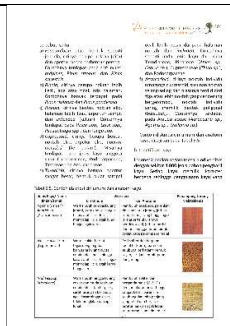
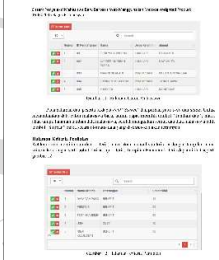
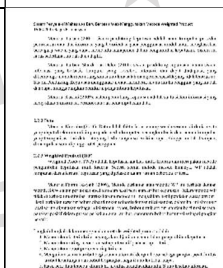
Mohammad Ridwan Bayu Pratama

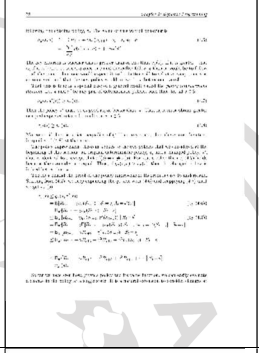
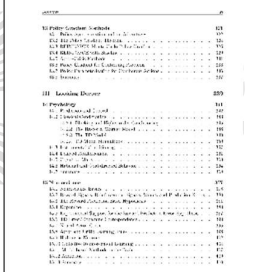
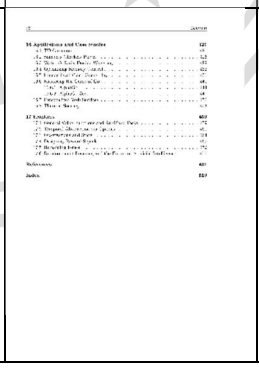
Lampiran

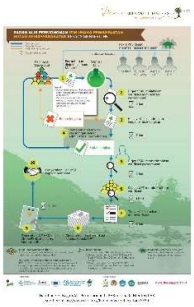
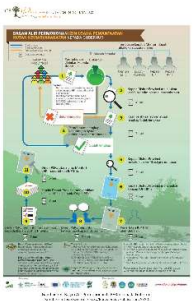
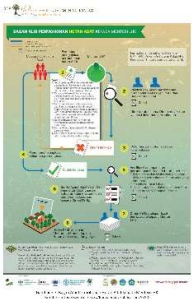
No	Data	Kelas		No	Data	Kelas
1		WARNA RENDAH		76		WARNA TINGGI
2		WARNA RENDAH		77		WARNA TINGGI
3		WARNA RENDAH		78		WARNA TINGGI
4		WARNA RENDAH		79		WARNA TINGGI

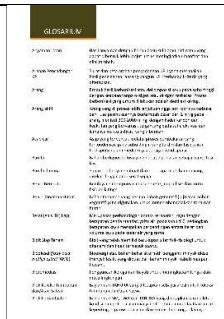
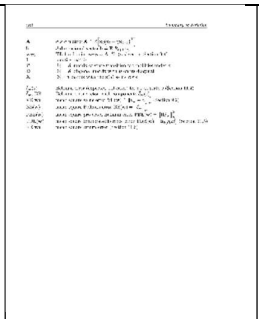
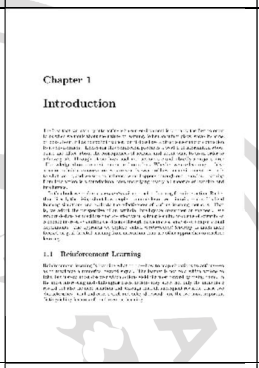
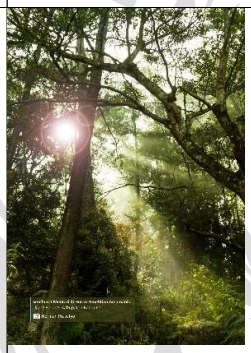
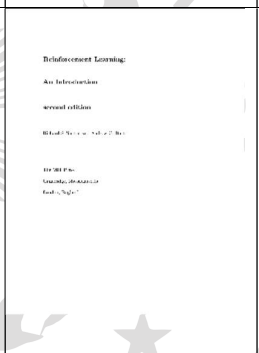
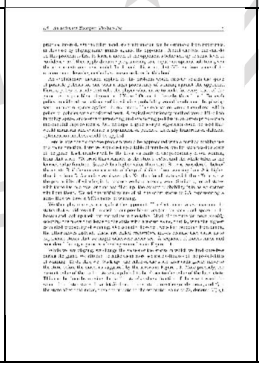
5		WARNA RENDAH		80		WARNA TINGGI
6		WARNA RENDAH		81		WARNA TINGGI
7		WARNA TINGGI		82		WARNA TINGGI
8		WARNA TINGGI		83		WARNA TINGGI

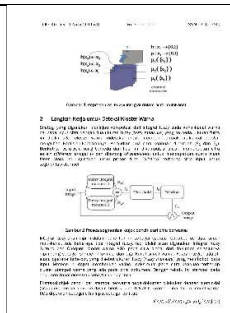
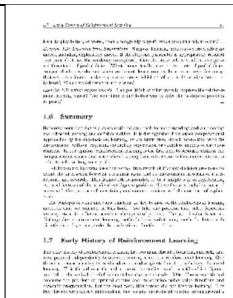
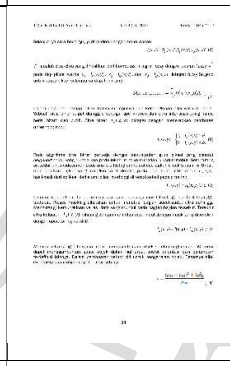
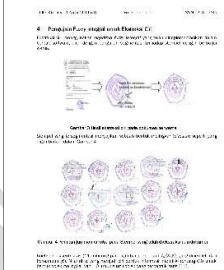
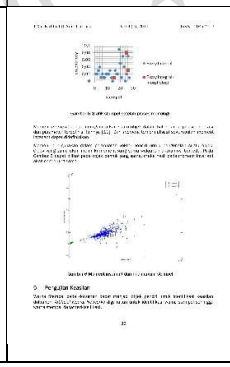
9		WARNA TINGGI		84		WARNA RENDAH
10		WARNA TINGGI		85		WARNA RENDAH
11		WARNA TINGGI		86		WARNA RENDAH
12		WARNA RENDAH		87		HITAM

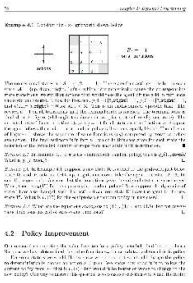
13		WARNA RENDAH		88		WARNA RENDAH
14		WARNA RENDAH		89		WARNA RENDAH
15		WARNA RENDAH		90		HITAM
16		WARNA TINGGI		91		HITAM

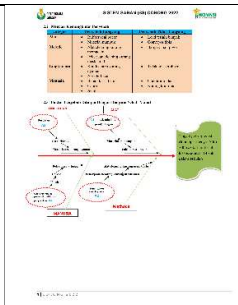
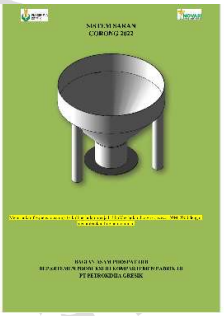
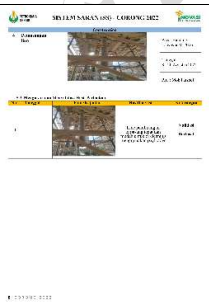
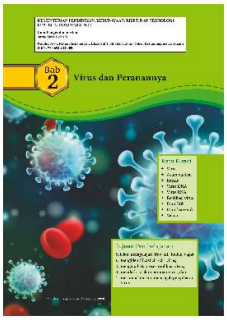
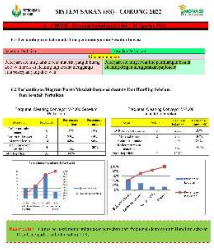
17		WARNA RENDAH		92		HITAM
18		WARNA RENDAH		93		HITAM
19		WARNA TINGGI		94		HITAM
20		WARNA RENDAH		95		HITAM

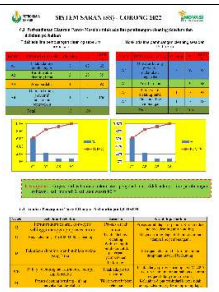
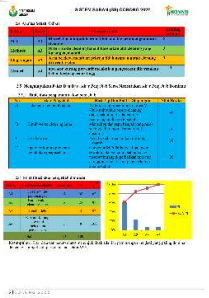
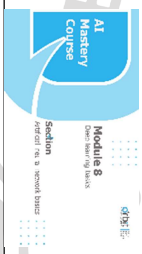
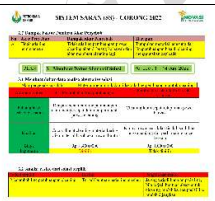
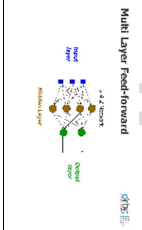
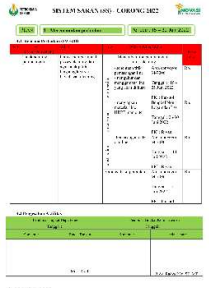
21		WARNA TINGGI		96	 Preface to the First Edition	HITAM
22		WARNA TINGGI		97		HITAM
23		WARNA TINGGI		98	 Summary of Notation	HITAM
24	 ABBREVIATION	WARNA RENDAH		99		HITAM

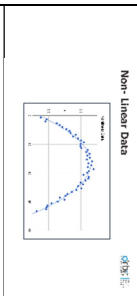
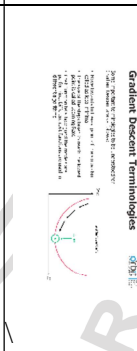
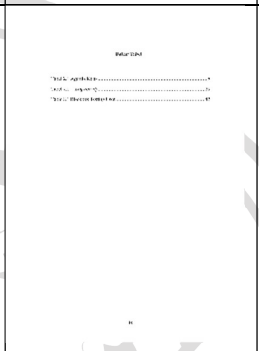
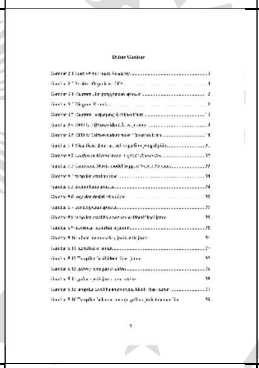
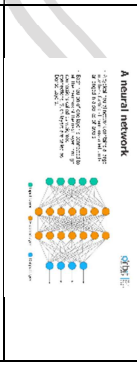
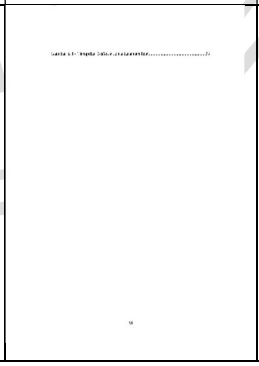
25		WARNA RENDAH		100		HITAM
26		WARNA TINGGI		101		HITAM
27		WARNA TINGGI		102		HITAM
28		WARNA TINGGI		103		HITAM

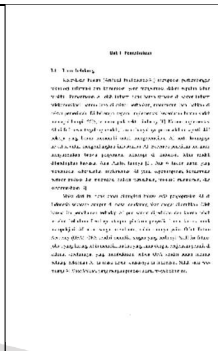
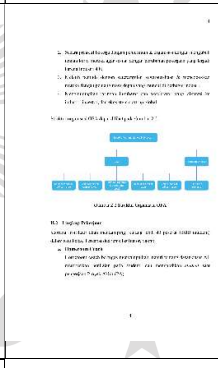
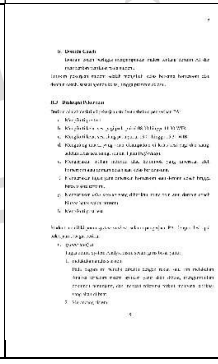
29		WARNA RENDAH		104		HITAM
30		HITAM		105		HITAM
31		WARNA RENDAH		106		HITAM
32		WARNA RENDAH		107		HITAM

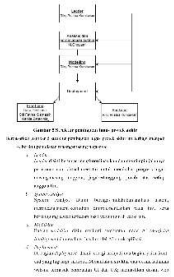
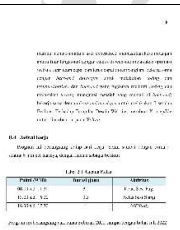
33		WARNA TINGGI		108		HITAM
34		WARNA TINGGI		109		HITAM
35		WARNA TINGGI		110		HITAM
36		WARNA TINGGI		111		HITAM

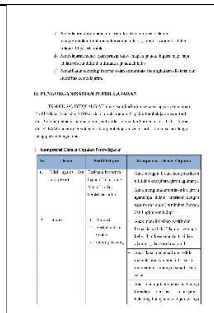
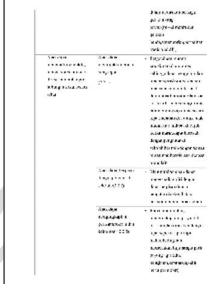
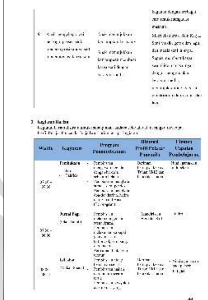
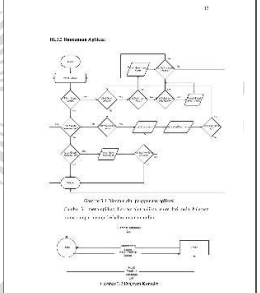
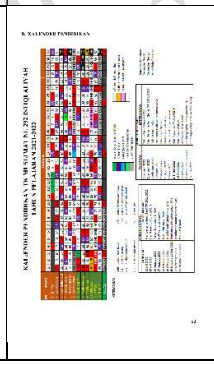
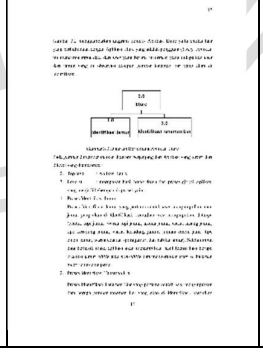
37		WARNA TINGGI		112		WARNA RENDAH
38		WARNA TINGGI		113		WARNA TINGGI
39		WARNA TINGGI		114		WARNA RENDAH
40		WARNA TINGGI		115		WARNA TINGGI

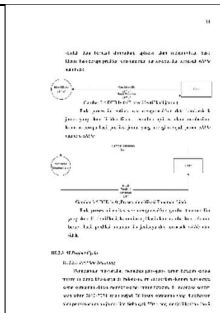
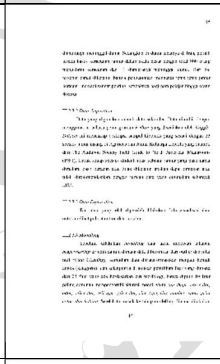
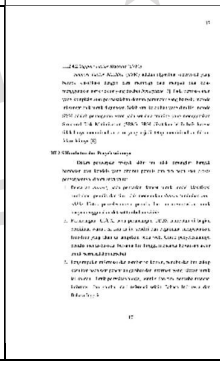
41		WARNA TINGGI		116		WARNA TINGGI
42		WARNA TINGGI		117		WARNA TINGGI
43		WARNA RENDAH		118		WARNA TINGGI
44		WARNA RENDAH		119		WARNA RENDAH

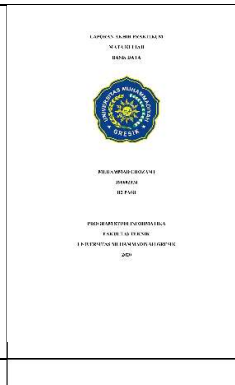
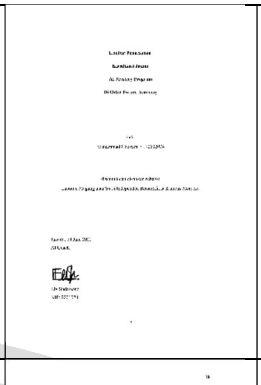
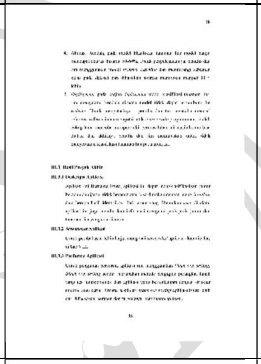
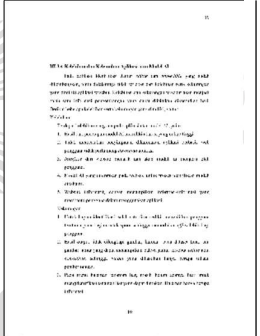
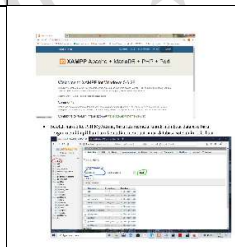
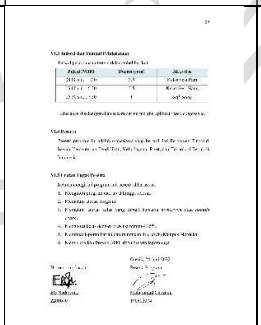
45		WARNA RENDAH		120		WARNA RENDAH
46		WARNA RENDAH		121		HITAM
47		WARNA RENDAH		122		HITAM
48		WARNA RENDAH		123		HITAM

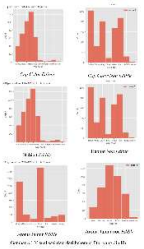
49		WARNA TINGGI		124		HITAM
50		WARNA TINGGI		125		HITAM
51		WARNA TINGGI		126		WARNA RENDAH
52		HITAM		127		HITAM

53		HITAM		128		HITAM
54		WARNA TINGGI		129		HITAM
55		WARNA TINGGI		130		WARNA RENDAH
56		WARNA TINGGI		131		HITAM

57		WARNA RENDAH		132		HITAM
58		HITAM		133		HITAM
59		WARNA RENDAH		134		HITAM
60		WARNA TINGGI		135		HITAM

61	LAMPIRAN-LAMPIRAN	WARNA RENDAH		136		HITAM
62		HITAM		137		HITAM
63		HITAM		138		HITAM
64		WARNA RENDAH		139		HITAM

65		WARNA RENDAH		140		HITAM
66		HITAM		141		HITAM
67		WARNA RENDAH		142		HITAM
68		WARNA RENDAH		143		WARNA RENDAH

69		WARNA TINGGI		144		WARNA RENDAH
70		WARNA TINGGI		145		WARNA RENDAH
71		WARNA TINGGI		146		WARNA RENDAH
72		WARNA TINGGI		147		WARNA RENDAH

73		WARNA TINGGI		148		WARNA RENDAH
74		WARNA TINGGI		149		WARNA RENDAH
75		WARNA TINGGI		150		WARNA RENDAH

Lampiran 2 Hasil ekstraksi fitur momen warna pada dataset

Nama_f	avgR	stdR	skewR	avgG	stdG	skewG	avgB	stdB	skewB	avgH	stdH	skewH	avgS	stdS	skewS	avgV	stdV	skewV	avgY	stdY	skewY	avgCb	stdCb	skewCb	avgCr	stdCr	skewCr	Kelas
1.png	232,2150	62,6071	-2,7106	233,7270	60,0637	-2,8613	235,8196	56,9933	-3,1957	0,0405	0,1450	3,5849	0,0342	0,1369	4,2115	0,9304	0,2089	-3,3646	233,5135	59,9985	-2,8149	129,3018	10,6254	4,4352	127,0745	4,0985	-0,0038	WARNA RENDAH
2.png	237,6165	53,1727	-3,5417	238,9628	51,3218	-3,7646	238,8276	52,4514	-3,7850	0,0345	0,1303	3,8407	0,0143	0,0793	7,9076	0,9392	0,1982	-3,8647	238,5449	51,8691	-3,6950	128,1599	3,9784	6,7777	127,3378	3,1060	-1,5312	WARNA RENDAH
3.png	227,5506	69,5520	-2,3708	228,0590	68,1038	-2,3722	225,2251	75,0534	-2,2936	0,0181	0,0727	4,9349	0,0445	0,1744	4,0084	0,8986	0,2597	-2,4629	227,5839	69,1084	-2,3441	126,6690	6,7884	-1,9908	127,9753	4,1398	3,7609	WARNA RENDAH
4.png	240,2712	47,2090	-3,5300	242,6547	41,3100	-3,9485	241,0136	47,8090	-3,7865	0,0370	0,1275	3,5753	0,0276	0,1128	4,7647	0,9544	0,1562	-4,0920	241,7550	43,4803	-3,7415	127,5823	6,0289	1,7950	126,9412	4,8100	0,4551	WARNA RENDAH
5.png	236,3433	53,5379	-3,2818	237,6167	51,1989	-3,5145	237,1326	52,8367	-3,4721	0,0334	0,1253	3,9533	0,0184	0,0932	7,1119	0,9356	0,1935	-3,6580	237,1808	51,6609	-3,4097	127,9732	6,1396	6,5289	127,4025	5,7354	3,4782	WARNA RENDAH
6.png	235,0640	51,9319	-3,1333	238,1965	46,2756	-3,5224	236,2581	53,4051	-3,3732	0,0652	0,1710	2,6369	0,0348	0,1251	4,3176	0,9371	0,1775	-3,6338	237,0389	48,4920	-3,3518	127,5602	6,1864	0,3178	126,5908	4,6224	-0,9776	WARNA RENDAH
7.png	99,3185	65,6264	0,5914	95,8561	59,4206	0,8083	55,7846	56,9222	1,4079	0,1886	0,1318	3,3214	0,5691	0,2427	-0,2700	0,4163	0,2482	0,5975	92,3232	59,4420	0,7958	107,3791	13,8877	-1,3533	132,9770	11,9245	1,6371	WARNA TINGGI
8.png	108,3264	49,0393	1,0075	106,3248	49,5250	0,8981	43,8766	43,3705	2,3689	0,1588	0,0543	2,9127	0,6641	0,1878	-0,8740	0,4492	0,1927	0,8970	99,8042	47,1411	1,0885	96,4376	14,2476	-0,8181	134,0591	8,0891	0,8423	WARNA TINGGI
9.png	81,4906	62,0222	0,6358	76,7007	61,5853	0,6461	59,7958	65,1044	1,5333	0,2017	0,1881	2,0958	0,4800	0,2265	0,5325	0,3570	0,2848	0,7390	76,2057	60,1444	0,6190	118,7381	17,6419	0,8854	131,7642	13,4638	0,5539	WARNA TINGGI
10.png	213,0354	25,7122	-1,9050	133,2089	42,7149	-0,1527	41,8109	40,0975	1,4298	0,0898	0,0260	14,4900	0,8161	0,1644	-1,2615	0,8355	0,1007	-1,8985	146,6577	35,9897	-0,2240	68,8103	10,8415	1,9092	175,3165	11,8074	-0,9137	WARNA TINGGI
11.png	73,3437	25,2769	5,1860	70,3997	25,2580	5,2758	43,7735	21,9975	8,3528	0,1500	0,0305	17,3162	0,4013	0,0807	0,2975	0,2877	0,0993	5,1932	68,2446	24,3372	5,5174	114,1894	8,3668	-6,3028	131,6287	1,5119	5,3757	WARNA TINGGI
12.png	218,2846	71,6947	-1,6392	219,4739	69,9481	-1,6935	217,1645	73,9922	-1,6291	0,0675	0,1654	3,0494	0,0382	0,0965	3,5181	0,8635	0,2702	-1,7135	218,8550	70,8340	-1,6645	127,0463	4,1349	-4,5464	127,5924	3,0799	1,5178	WARNA RENDAH
13.png	240,0275	51,6367	-3,5730	238,6091	53,9825	-3,3049	237,5583	56,3726	-3,1588	0,0070	0,0272	5,6512	0,0165	0,0862	6,4568	0,9413	0,2023	-3,5752	238,9134	53,3041	-3,3587	127,2349	4,8358	-7,1112	128,7943	5,3462	7,4271	WARNA RENDAH
14.png	237,8036	55,9545	-3,2360	237,7877	56,0420	-3,2463	237,6057	56,5638	-3,2361	0,0157	0,0729	6,8603	0,0078	0,0392	11,5268	0,9335	0,2180	-3,2739	237,7717	56,0393	-3,2427	127,9063	2,1468	-20,7961	128,0227	1,8727	19,9610	WARNA RENDAH
15.png	232,1987	61,1654	-2,5870	231,0894	63,5230	-2,5083	230,0376	66,0931	-2,4602	0,0203	0,0896	7,3857	0,0255	0,0974	4,8029	0,9111	0,2395	-2,5983	231,3012	63,0263	-2,5199	127,2866	3,7803	-6,6127	128,6398	3,3402	6,8475	WARNA RENDAH
16.png	116,2254	69,5742	-0,0086	122,9212	65,0241	-0,2637	124,3502	71,0681	-0,4722	0,5258	0,2569	-0,1226	0,2090	0,2169	1,4886	0,5058	0,2624	-0,3691	121,0821	66,8113	-0,2038	129,8461	6,6612	-0,5076	124,5363	5,8489	-0,6734	WARNA TINGGI
17.png	223,1005	70,9636	-2,0374	221,4608	73,2739	-1,9440	220,3120	75,5209	-1,9067	0,0464	0,1583	4,3741	0,0426	0,1241	3,4983	0,8772	0,2741	-2,0492	221,8201	72,6965	-1,9601	127,1485	3,5306	-6,3420	128,9129	4,9024	3,8851	WARNA RENDAH
18.png	215,9052	75,0172	-1,6672	216,4938	73,8901	-1,6859	210,2477	83,5941	-1,4858	0,0379	0,0916	3,4005	0,0662	0,1625	2,4896	0,8512	0,2872	-1,7090	215,6057	75,1874	-1,6465	124,9764	7,9562	-2,7289	128,2116	2,6256	12,0476	WARNA RENDAH
19.png	124,4846	86,4136	0,2897	139,9314	82,9462	0,0866	93,8639	93,7047	0,6914	0,2401	0,1453	1,7608	0,4871	0,3309	-0,0918	0,5565	0,3254	0,0749	130,0611	83,8147	0,2348	107,5768	20,4847	-1,1757	124,0081	8,4525	0,3893	WARNA TINGGI
20.png	224,1000	71,7409	-2,2127	222,7728	73,3029	-2,1199	220,6027	76,5377	-1,9870	0,0304	0,1239	4,9909	0,0326	0,1214	4,5627	0,8818	0,2771	-2,2686	222,9223	72,8844	-2,1245	126,6906	6,4052	-5,1812	128,8394	6,6941	7,6253	WARNA RENDAH
21.png	207,9987	54,0078	-1,0377	220,1226	43,7404	-1,6808	205,6365	55,6189	-1,1116	0,1813	0,1837	0,5441	0,1084	0,1540	2,5184	0,8705	0,1603	-1,6045	214,8462	47,0477	-1,2777	122,8059	9,7168	-3,1663	123,1114	10,5028	-0,1876	WARNA TINGGI
22.png	207,7883	54,1215	-1,0792	220,0914	43,8668	-1,7129	206,0702	55,1725	-1,1581	0,1898	0,1882	0,5554	0,1092	0,1545	2,5550	0,8713	0,1602	-1,6577	214,8143	47,0709	-1,3165	123,0686	9,7300	-2,3801	122,9842	10,7362	-0,3000	WARNA TINGGI
23.png	206,9582	56,0096	-1,3378	216,9591	41,9421	-1,2559	200,8075	55,7017	-0,6709	0,1706	0,1805	0,7265	0,1201	0,1743	2,6195	0,8599	0,1566	-1,3018	212,1276	46,3809	-1,0345	121,6143	10,9065	-1,4172	124,3078	12,1960	-1,1928	WARNA TINGGI
24.png	243,2823	48,0395	-4,0853	243,0332	48,5717	-4,0340	241,7018	53,5855	-3,9079	0,0042	0,0249	5,7827	0,0192	0,1135	5,7647	0,9540	0,1884	-4,0853	242,9559	48,8980	-4,0267	127,2922	4,4744	-8,0058	128,2324	2,4294	22,2018	WARNA RENDAH
25.png	237,5434	58,6578	-3,2758	237,2947	59,0689	-3,2447	235,9685	63,1186	-3,1577	0,0042	0,0248	5,7920	0,0191	0,1132	5,7788	0,9315	0,2300	-3,2758	237,2179	59,3286	-3,2391	127,2949	4,4675	-8,0287	128,2318	2,4287	22,2213	WARNA RENDAH
26.png	82,7281	38,2347	3,0863	81,7953	42,8915	2,6425	38,7640	45,8750	3,4014	0,1741	0,1007	3,5160	0,6203	0,1722	-2,4662	0,3407	0,1662	2,6016	77,1687	40,8762	2,8942	106,3267	9,6480	0,4665	131,9520	7,1135	-1,4841	WARNA TINGGI
27.png	98,6824	72,3630	0,8468	98,4302	71,3034	0,8725	64,9167	71,2620	1,3371	0,1710	0,0861	6,3627	0,5047	0,2653	0,0242	0,3973	0,2829	0,8178	94,6850	71,2016	0,9226	111,2007	10,3728	-0,9454	130,8407	4,1584	1,7107	WARNA TINGGI
28.png	86,4204	39,5378	2,9925	81,4604	39,0360	3,0911	43,5993	50,5471	2,7418	0,1594	0,0908	4,0694	0,5916	0,1944	-1,9158	0,3438	0,1579	2,7978	78,6273	40,1619	3,0371	108,2312	8,2309	2,1541	133,5467	4,4848	1,0670	WARNA TINGGI
29.png	242,6187	48,6553	-4,1410	242,6482	48,5719	-4,1491	243,0188	47,6821	-4,2680	0,0063	0,0634	10,1562	0,0028	0,0306	11,9139	0,9530	0,1869	-4,2698	242,6816	48,4754	-4,1586	128,1903	2,1415	11,4776	127,9552	0,6506	-25,9954	WARNA RENDAH
30.png	245,7221	44,5356	-4,9142	245,7219	44,5328	-4,9146	245,7219	44,5403	-4,9141	0,0004	0,0158	39,7103	0,0004	0,0151	43,2591	0,9638	0,1744	-4,9270	245,7220	44,5255	-4,9149	127,9999	0,9408	-0,7758	128,0001	0,8364	-1,0752	HITAM
31.png	247,6580	34,0809	-6,0518	247,2116	34,5892	-5,8391	248,1927	33,5240	-6,3093	0,0701	0,2123	2,8520	0,0057	0,0261	8,6362	0,9738	0,1312	-6,3409	247,4569	34,2632	-5,9669	128,4151	2,1469	5,4826	128,1437	1,2901	5,8716	WARNA RENDAH
32.png	248,4503	35,8546	-5,9926	248,4989	35,6666	-6,0195	248,8105	34,7043	-6,2442	0,0063	0,0604	10,3867	0,0029	0,0405	16,9322	0,9761	0,1351	-6,3092	248,5199	35,5192	-6,0245	128,1640	3,2896	21,9543	127,9504	1,9174	6,8103	WARNA RENDAH
33.png	221,7181	34,8448	-3,7586	225,8313	36,9550	-4,1154	209,5004	37,7392	-2,4009	0,1951	0,1635	1,8224	0,1056	0,1486	3,2944	0,9020	0,1048	-4,6691	222,7398	33,8504	-3,5027	120,5297	11,1182	0,0793	127,2662	12,5837	4,2812	WARNA TINGGI
34.png	185,2639	64,7020	-0,8768	198,1871	58,3446	-1,5018	142,2136	101,3543	-0,2210	0,2417	0,2241	0,9050	0,3557	0,3846	0,6957	0,8050	0,2223	-1,7179	187,9421	60,7392	-0,9281	102,1973	36,7489	-0,7996	126,0722	13,0342	-0,0515	WARNA TINGGI
35.png	160,1416	70,6754	-0,2151	181,1816	64,2252	-0,8343	118,2288	94,5812	0,2221	0,2115	0,1654	0,9437	0,4224	0,3668	0,4424	0,7321	0,2507	-0,9838	167,7140	64,6329	-0,3404	100,0794	37,8934	-0,4644	122,5792	14,0011	-1,0210	WARNA TINGGI
36.png	163,0503	72,8041	-0,3602	178,7660	69,6428	-0,8641	108,7916	96,7926	0,4179	0,1682	0,1407	2,1855	0,4159	0,3828	0,3958	0,7128	0,2697	-0,9247	166,0899	69,5997	-0,4268	95,6688	34,9422	-0,6755	125,8101	11,3811	-0,8820	WARNA TINGGI
37.png	190,0068	60,2801	-0,9609	204,7251	52,3991	-1,8252	134,2749	96,0706	0,0236	0,1926	0,1516	1,0049	0,3958	0,3647	0,3448	0,8230	0,1973	-2,0927	192,2930	55,8415	-1,0256	95,2623	33,4430	-0,4523	126,3474	12,9779	0,4971	WARNA TINGGI
38.png	141,4340	82,6473	-0,0003	162,3008	78,7874	-0,5529	101,9733	93,8983	0,5800	0,2245	0,1945	1,0543	0,4448	0,3926	0,1698	0,6708	0,2996	-0,7732	149,1843	76,0062	-0,1636	101,3627	41,1202	-0,3795	122,4531	16,2672	-0,1183	WARNA TINGGI
39.png	213,3035	65,4627	-1,8735	216,3770	65,2998	-1,8834	201,9479	67,6685	-1,3403	0,1493	0,1917	1,8764	0,1002	0,1451	3,0391	0,8603	0,2445	-2,0338	213,8131	64,8149	-1,8118	121,3049	10,1282	-1,1578	127,6320	8,4394	-0,3745	WARNA TINGGI
40.png	134,0639	85,2306	0,0681	161,3672	77,0990	-0,4094	108,7815	93,7434	0,4850	0,2936	0,2129	0,2032	0,4825	0,3657	0,0717	0,6611	0,2923	-0,5356	147,2087	75,5707	-0,0242	106,3214	39,9178	-0,7588	118,6078	19,4833	0,5807	WARNA TINGGI
41.png	168,0102	78,0974	-0,4894	192,4989	61,5513	-1,0013	119,4553	103,1772	0,3026	0,1788	0,1428	0,6300	0,4400	0,3942	0,2108	0,7626	0,2418	-1,0262	176,8498	67,3570	-0,4212	95,6168	34,6607	-0,5704	121,6722	15,2335	-1,3439	WARNA TINGGI
42.png	148,1643	85,9204	-0,1450	162,8051	86,9963	-0,5598	104,8281	98,3275	0,5339	0,2333	0,2420	1,5270	0,3480	0,3916	0,7132	0,6526	0,3375	-0,6068	151,8181	83,9796	-0,2607	101,4858	36,7488	-0,7900	125,3758	10,8074	-1,1182	WARNA TINGGI
43.png	193,4113	79,4216	-0,8404	230,6790	33,0224	-1,2990	246,2368	20,1769	-5,5328	0,2291	0,2717	0,3721	0,2224	0,3022	0,9789	0,9661	0,0770	-5,4571	221,3095	43,7929	-0,8988	142,0771	19,2431	0,9598	108,1060	26,9863	-0,9252	WARNA RENDAH

44.png	247,7165	38,0632	-5,4152	248,0878	36,0233	-5,4081	247,5508	40,1630	-5,4121	0,0057	0,0518	10,8333	0,0164	0,1229	7,7555	0,9780	0,1232	-6,0006	247,9156	36,2774	-5,1947	127,7943	9,5495	5,4528	127,8578	5,4981	-6,2452	WARNA RENDAH
45.png	248,8409	32,2367	-5,4403	249,3577	29,8112	-5,5790	250,1856	26,9741	-6,1518	0,0132	0,0880	6,5445	0,0088	0,0645	8,8412	0,9812	0,1051	-6,1359	249,2975	30,0451	-5,5461	128,5013	4,4518	11,1231	127,6745	2,9602	-11,8127	WARNA RENDAH
46.png	244,7970	43,1811	-4,1519	244,6533	43,5144	-4,1235	244,6957	43,3714	-4,1286	0,0034	0,0510	16,4014	0,0048	0,0446	16,0697	0,9612	0,1661	-4,2211	244,7011	43,2122	-4,1203	127,9969	1,2162	31,7298	128,0684	4,2792	0,1290	WARNA RENDAH
47.png	180,9583	110,3783	-0,8830	183,6343	104,5161	-0,8125	194,3792	92,8806	-0,9432	0,1717	0,2748	1,0303	0,2609	0,4174	1,0191	0,7646	0,3633	-0,9571	184,0591	104,1738	-0,8331	133,8247	14,3897	4,1378	125,7917	10,3186	0,0510	WARNA RENDAH
48.png	240,6852	45,6852	-3,6364	241,1397	40,6528	-3,3713	238,5155	50,1229	-3,3868	0,0324	0,1287	4,5624	0,0362	0,1686	4,9796	0,9557	0,1466	-3,9695	240,7047	41,2791	-3,2527	126,7647	12,5460	-4,7083	127,9853	12,9254	-2,1488	WARNA RENDAH
49.png	215,1859	79,0321	-2,0105	167,5068	93,9150	-0,3966	136,6597	106,2583	-0,0635	0,1264	0,1613	2,8039	0,3979	0,4010	0,3466	0,8530	0,2985	-2,1008	178,2463	83,9605	-0,6921	104,5187	27,4154	-0,4443	154,3382	36,8914	0,7499	WARNA TINGGI
50.png	207,8127	72,0998	-1,4373	211,6518	65,3645	-1,4652	203,3705	77,7318	-1,3124	0,1634	0,2467	1,4202	0,1557	0,2700	1,8310	0,8599	0,2256	-1,7614	209,5598	66,1172	-1,3051	124,5082	19,8328	-3,0870	126,7513	17,1689	-0,5398	WARNA TINGGI
51.png	206,5981	74,5016	-1,3624	207,5272	71,7136	-1,2788	204,3357	77,1312	-1,2102	0,1235	0,2311	1,9629	0,1222	0,2238	2,0188	0,8407	0,2534	-1,5416	206,8856	72,0766	-1,2420	126,5613	12,4752	-0,2323	127,7940	11,8890	-1,3359	WARNA TINGGI
52.png	249,3883	35,0501	-6,4799	249,3883	35,0501	-6,4799	249,3883	35,0501	-6,4799	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9780	0,1375	-6,4799	249,3883	35,0501	-6,4799	128,0000	0,0000	-37,5851	128,0000	0,0000	0,0000	HITAM
53.png	243,1687	44,7908	-4,2063	243,1606	44,8098	-4,2052	243,2805	44,5249	-4,2231	0,0426	0,1618	3,6783	0,0032	0,0368	21,1394	0,9541	0,1746	-4,2233	243,1767	44,7710	-4,2076	128,0586	0,3946	5,9095	127,9943	0,1107	-17,5442	HITAM
54.png	228,0098	50,2935	-2,8396	214,6143	62,7751	-2,0540	202,0336	77,8934	-1,2360	0,2721	0,3060	0,7611	0,2397	0,2782	1,1761	0,9448	0,1626	-4,0059	217,1854	53,7609	-2,0696	119,4458	22,9781	-1,1425	135,7168	29,4179	1,7413	WARNA TINGGI
55.png	205,4530	80,0363	-1,7570	221,8642	62,6255	-2,5945	222,8656	65,4886	-2,7510	0,2388	0,1745	1,0941	0,1316	0,2657	2,2200	0,8926	0,2323	-3,0081	217,0714	65,1140	-2,2760	131,2742	15,3091	0,2182	119,7133	22,3595	-1,8637	WARNA TINGGI
56.png	181,5585	66,0462	-0,8202	202,0828	57,1118	-1,6260	225,8317	50,2569	-3,0884	0,4108	0,2695	-0,8669	0,2094	0,1848	0,5451	0,8856	0,1971	-3,0884	198,6534	58,2622	-1,4687	143,3431	12,5016	0,0593	115,8142	9,4677	0,0831	WARNA TINGGI
57.png	242,8339	47,0502	-4,1777	243,7512	45,4598	-4,5018	244,8520	44,2730	-4,8534	0,0183	0,1024	5,4113	0,0095	0,0532	5,4113	0,9602	0,1736	-4,8534	243,6024	45,6822	-4,4488	128,7054	3,9606	5,4520	127,4522	3,0759	-5,4518	WARNA RENDAH
58.png	248,3582	37,9203	-5,9035	248,3582	37,9203	-5,9035	248,3582	37,9203	-5,9035	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9740	0,1487	-5,9035	248,3582	37,9203	-5,9035	128,0000	0,0000	-39,8432	128,0000	0,0000	0,0000	HITAM
59.png	240,8636	49,1036	-3,7384	242,6025	46,0769	-4,2686	244,7535	44,0441	-4,8794	0,0276	0,1249	4,2979	0,0176	0,0794	4,2991	0,9598	0,1727	-4,8794	242,3278	46,4786	-4,1797	129,3694	6,2302	4,3472	126,9563	4,7487	-4,3474	WARNA RENDAH
60.png	227,3926	65,9822	-2,4045	218,5224	77,6868	-1,9384	216,9169	80,7920	-1,9132	0,0535	0,1681	3,4681	0,1082	0,2763	2,4595	0,9077	0,2336	-2,7193	220,9916	71,4165	-1,9219	125,6982	15,0145	-1,6811	132,5651	22,5225	3,4432	WARNA TINGGI
61.png	254,0180	15,5352	-16,0112	254,0180	15,5352	-16,0112	203,2978	12,5964	-15,2894	0,1658	0,0118	-14,0047	0,1990	0,0142	-13,8787	0,9961	0,0609	-16,0112	248,2359	15,1833	-16,0056	102,6399	1,8515	13,4001	132,1083	0,2999	-13,4001	WARNA RENDAH
62.png	244,0403	48,4534	-4,4796	244,0403	48,4534	-4,4796	244,0403	48,4534	-4,4796	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9570	0,1900	-4,4796	244,0403	48,4534	-4,4796	128,0000	0,0000	-30,4547	128,0000	0,0000	0,0000	HITAM
63.png	246,5733	42,6250	-5,1865	246,5733	42,6250	-5,1865	246,5733	42,6250	-5,1865	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9670	0,1672	-5,1865	246,5733	42,6250	-5,1865	128,0000	0,0000	-34,3736	128,0000	0,0000	0,0000	HITAM
64.png	244,6008	45,0361	-4,5758	245,1101	43,8958	-4,7620	244,9221	44,4810	-4,7056	0,0086	0,0646	8,3066	0,0068	0,0572	10,1957	0,9619	0,1702	-4,8308	244,9364	44,1814	-4,6943	127,9921	2,0555	-9,3288	127,7606	3,4167	-3,5499	WARNA RENDAH
65.png	245,5805	45,7072	-4,8268	247,1208	38,4810	-4,9353	247,6031	34,9913	-5,0923	0,0210	0,1059	5,1270	0,0323	0,1631	5,0487	0,9767	0,1188	-5,7126	246,7152	39,6643	-4,8503	128,5014	10,4494	-2,8579	127,1908	5,4268	-5,3881	WARNA RENDAH
66.png	245,6014	45,0452	-4,8854	245,6014	45,0452	-4,8854	245,6014	45,0452	-4,8854	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9631	0,1766	-4,8854	245,6014	45,0452	-4,8854	128,0000	0,0000	-32,4178	128,0000	0,0000	0,0000	HITAM
67.png	244,5037	40,8923	-4,9022	244,3159	41,3467	-4,8335	244,9296	39,4215	-4,9529	0,0175	0,0968	6,3280	0,0134	0,0866	8,6373	0,9650	0,1458	-5,4419	244,4420	40,5431	-4,8334	128,2751	8,3503	10,8791	128,0442	3,7084	3,0480	WARNA RENDAH
68.png	240,7327	45,4983	-3,8495	241,5845	42,0937	-3,8554	242,0129	39,2671	-3,8198	0,0584	0,1681	2,9730	0,0273	0,1116	4,9442	0,9538	0,1470	-4,0636	241,3787	42,5390	-3,8221	128,3581	5,1366	1,0486	127,5394	4,7485	-0,6127	WARNA RENDAH
69.png	209,4278	75,8763	-1,5227	212,4480	71,8266	-1,5625	209,9840	70,5097	-1,3407	0,1593	0,2465	1,3821	0,1085	0,1982	2,1047	0,8549	0,2518	-1,6920	211,2641	72,0946	-1,5053	127,2784	12,4168	-0,0142	126,6895	8,6594	3,9396	WARNA TINGGI
70.png	186,4130	91,0388	-0,7785	191,1919	86,1310	-0,8591	184,9844	92,5685	-0,7245	0,1559	0,2386	1,5377	0,1632	0,2471	1,3924	0,7721	0,3165	-0,9566	189,0553	87,3919	-0,7866	125,7039	13,1121	0,4416	126,1133	10,9432	3,7367	WARNA TINGGI
71.png	190,1098	91,1295	-0,8633	194,0720	85,8524	-0,9117	186,9922	94,8554	-0,8079	0,1254	0,2038	1,7463	0,1466	0,2279	1,4085	0,7767	0,3240	-1,0022	192,0802	87,8328	-0,8631	125,1297	11,3538	1,1778	126,5924	9,1123	5,1643	WARNA TINGGI
72.png	212,9752	76,0757	-1,5513	213,9442	74,1030	-1,5406	208,5980	80,4665	-1,4111	0,1054	0,1964	2,2009	0,0903	0,1781	2,2689	0,8516	0,2764	-1,6521	213,0450	74,8628	-1,5085	125,4906	8,7585	0,1622	127,9485	8,2650	7,4365	WARNA TINGGI
73.png	202,1935	81,4176	-1,2309	205,9732	76,5958	-1,2796	195,5517	85,6862	-1,0244	0,1230	0,1931	1,8722	0,1420	0,2374	1,7518	0,8213	0,2846	-1,3375	203,6550	78,2939	-1,2085	123,4280	13,7004	-0,9945	126,9543	8,1711	6,2767	WARNA TINGGI
74.png	217,4441	66,1967	-1,7300	221,8451	61,0399	-1,8817	213,0458	68,0473	-1,3911	0,1264	0,2023	1,6791	0,1111	0,1978	2,0154	0,8863	0,2139	-2,0056	219,5261	62,1769	-1,7230	124,3441	15,0888	-0,4902	126,5122	9,2527	2,2174	WARNA TINGGI
75.png	206,1803	77,7080	-1,3521	209,3877	73,4028	-1,4069	204,3453	77,5328	-1,2134	0,1310	0,2188	1,6858	0,1316	0,2258	1,7508	0,8426	0,2604	-1,5634	207,8539	74,3430	-1,3345	126,0208	13,8985	0,4845	126,8047	8,1325	5,6895	WARNA TINGGI
76.png	187,4040	90,6205	-0,7911	189,4876	86,8172	-0,7695	191,2328	86,8433	-0,8405	0,1551	0,2566	1,5358	0,1389	0,2280	1,7279	0,7793	0,3110	-0,9915	189,0636	87,0877	-0,7560	129,2247	15,3438	2,1178	126,8168	9,5909	3,2227	WARNA TINGGI
77.png	184,9892	94,9014	-0,8329	185,3805	93,3256	-0,8106	184,9408	92,8189	-0,7379	0,1877	0,2882	1,2109	0,1482	0,2341	1,5408	0,7546	0,3377	-0,9064	185,2134	93,2000	-0,7929	127,8463	10,8840	0,6441	127,8400	8,3016	6,4962	WARNA TINGGI
78.png	187,3731	92,5348	-0,8336	188,6530	89,8484	-0,8192	185,8709	93,5363	-0,7827	0,1659	0,2632	1,3846	0,1520	0,2432	1,5047	0,7651	0,3271	-0,9308	187,9532	90,4206	-0,7942	126,8253	12,9860	0,9508	127,5854	8,4027	6,0848	WARNA TINGGI
79.png	174,5854	105,4483	-0,6533	173,1583	105,5184	-0,5983	175,1997	103,4004	-0,6222	0,1248	0,2515	1,9424	0,1128	0,2192	2,1259	0,7023	0,3937	-0,6977	173,8177	104,9395	-0,6093	128,7795	8,4561	3,0114	128,5482	7,5128	8,0594	WARNA TINGGI
80.png	183,9587	97,2517	-0,8284	185,3769	95,9256	-0,8519	183,0353	97,6062	-0,7759	0,1318	0,2445	1,8053	0,1130	0,2197	2,0815	0,7491	0,3577	-0,9833	184,6859	95,7846	-0,8203	127,0689	11,1428	0,6186	127,4806	10,4761	3,7760	WARNA TINGGI
81.png	210,3091	70,8031	-1,3645	212,5945	69,6254	-1,4736	202,0840	78,7955	-1,0958	0,1193	0,1994	2,1129	0,1113	0,1876	1,8477	0,8471	0,2549	-1,5548	210,7130	70,1942	-1,3603	123,1310	12,5657	-0,7547	127,7087	8,4089	6,6891	WARNA TINGGI
82.png	196,1592	79,2652	-0,9228	199,1778	77,0070	-1,0080	188,7958	87,0137	-0,8095	0,1267	0,1976	1,9096	0,1479	0,2189	1,4512	0,7996	0,2848	-1,1273	197,0917	77,9529	-0,9274	123,3191	13,7235	-0,0646	127,3317	9,4213	4,2034	WARNA TINGGI
83.png	198,4374	87,9553	-1,1365	203,7712	81,3023	-1,2279	193,2477	92,0662	-0,9804	0,1022	0,1702	1,8809	0,1533	0,2543	1,5195	0,8087	0,3065	-1,2516	200,9767	83,9026	-1,1487	123,6397	13,0156	-1,2308	126,1855	7,3722	7,9281	WARNA TINGGI
84.png	200,7644	92,8769	-1,4266	203,2761	92,2891	-1,4949	206,3134	93,1524	-1,5380	0,0940	0,2166	1,9790	0,0454	0,1399	4,4478	0,8137	0,3608	-1,5795	202,8714	92,2284	-1,4809	129,9431	7,7754	1,6308	126,4982	7,5848	-2,8795	WARNA RENDAH
85.png	240,8064	37,7387	-4,2304	242,1304	37,0175	-4,6445	246,1301	31,7524	-5,2252	0,0868	0,2141	2,1561	0,0355	0,1264	5,5558	0,9699	0,1125	-5,8381	242,1905	34,9352	-4,3027	130,2236	8,3428	5,5386	127,0140	10,9667	5,3191	WARNA RENDAH
86.png	240,8937	40,0449	-4,5354	242,8045	38,3461	-5,0800	246,3924	35,7435	-5,8957	0,0816	0,2042	2,1408	0,0351	0,1248	5,6049	0,9709	0,1213	-6,5828	242,6422	37,3464	-4,8392	130,1169	9,1816	5,4990	126,7540	9,1928	2,4116	WARNA RENDAH
87.png	239,9556	56,4763	-3,7200	239,9556	56,4763	-3,7200	239,9556	56,4763	-3,7200	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9410	0,2215	-3,7200	239,9556	56,4763	-3,7200	128,0000	0,0000	-24,1083	128,0000	0,0000	0,0000	HITAM

89.png	245,6629	32,7926	-6,1157	245,0172	34,4719	-5,6589	244,7583	35,2799	-5,4927	0,0104	0,0757	8,2990	0,0078	0,0596	9,2009	0,9652	0,1242	-6,4896	245,1808	33,6284	-5,7595	127,7614	2,8940	-6,8510	128,3438	5,7442	9,0058	WARNA RENDAH
90.png	247,7592	39,9103	-5,6498	247,7592	39,9103	-5,6498	247,7592	39,9103	-5,6498	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9716	0,1565	-5,6498	247,7592	39,9103	-5,6498	128,0000	0,0000	-35,0033	128,0000	0,0000	0,0000	HITAM
91.png	239,2290	57,7162	-3,6159	239,2290	57,7162	-3,6159	239,2290	57,7162	-3,6159	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9382	0,2263	-3,6159	239,2290	57,7162	-3,6159	128,0000	0,0000	-23,9012	128,0000	0,0000	0,0000	HITAM
92.png	246,7835	42,4337	-5,2710	246,7835	42,4337	-5,2710	246,7835	42,4337	-5,2710	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9678	0,1664	-5,2710	246,7835	42,4337	-5,2710	128,0000	0,0000	-32,8408	128,0000	0,0000	0,0000	HITAM
93.png	246,7663	40,8308	-5,2091	246,7663	40,8308	-5,2091	246,7663	40,8308	-5,2091	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9677	0,1601	-5,2091	246,7663	40,8308	-5,2091	128,0000	0,0000	-25,9854	128,0000	0,0000	0,0000	HITAM
94.png	247,8847	38,5263	-5,6723	247,8847	38,5263	-5,6723	247,8847	38,5263	-5,6723	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9721	0,1511	-5,6723	247,8847	38,5263	-5,6723	128,0000	0,0000	-29,0215	128,0000	0,0000	0,0000	HITAM
95.png	251,3213	27,8664	-8,0313	251,3213	27,8664	-8,0313	251,3213	27,8664	-8,0313	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9856	0,1093	-8,0313	251,3213	27,8664	-8,0313	128,0000	0,0000	-41,8847	128,0000	0,0000	0,0000	HITAM
96.png	242,0366	51,1868	-4,0368	242,0366	51,1868	-4,0368	242,0366	51,1868	-4,0368	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9492	0,2007	-4,0368	242,0366	51,1868	-4,0368	128,0000	0,0000	-21,6247	128,0000	0,0000	0,0000	HITAM
97.png	240,1746	54,1900	-3,7202	240,1746	54,1900	-3,7202	240,1746	54,1900	-3,7202	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9419	0,2125	-3,7202	240,1746	54,1900	-3,7202	128,0000	0,0000	-19,8694	128,0000	0,0000	0,0000	HITAM
98.png	247,6947	39,0103	-5,5836	247,6947	39,0103	-5,5836	247,6947	39,0103	-5,5836	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9714	0,1530	-5,5836	247,6947	39,0103	-5,5836	128,0000	0,0000	-28,7181	128,0000	0,0000	0,0000	HITAM
99.png	245,2150	44,5217	-4,7315	245,2150	44,5217	-4,7315	245,2150	44,5217	-4,7315	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9616	0,1746	-4,7315	245,2150	44,5217	-4,7315	128,0000	0,0000	-23,6819	128,0000	0,0000	0,0000	HITAM
100.png	251,5175	26,9624	-8,2589	251,5175	26,9624	-8,2589	251,5175	26,9624	-8,2589	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9863	0,1057	-8,2589	251,5175	26,9624	-8,2589	128,0000	0,0000	-41,9758	128,0000	0,0000	0,0000	HITAM
101.png	244,6554	46,0830	-4,6008	244,6554	46,0830	-4,6008	244,6554	46,0830	-4,6008	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9594	0,1807	-4,6008	244,6554	46,0830	-4,6008	128,0000	0,0000	-24,7142	128,0000	0,0000	0,0000	HITAM
102.png	253,7458	16,8058	-14,0863	253,7458	16,8058	-14,0863	253,7458	16,8058	-14,0863	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9951	0,0659	-14,0863	253,7458	16,8058	-14,0863	128,0000	0,0000	-91,2469	128,0000	0,0000	0,0000	HITAM
103.png	239,2915	55,5410	-3,5888	239,2915	55,5410	-3,5888	239,2915	55,5410	-3,5888	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9384	0,2178	-3,5888	239,2915	55,5410	-3,5888	128,0000	0,0000	-19,0287	128,0000	0,0000	0,0000	HITAM
104.png	241,3928	52,1522	-3,9184	241,3928	52,1522	-3,9184	241,3928	52,1522	-3,9184	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9466	0,2045	-3,9184	241,3928	52,1522	-3,9184	128,0000	0,0000	-20,7145	128,0000	0,0000	0,0000	HITAM
105.png	238,6824	56,5776	-3,5076	238,6824	56,5776	-3,5076	238,6824	56,5776	-3,5076	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9360	0,2219	-3,5076	238,6824	56,5776	-3,5076	128,0000	0,0000	-18,9990	128,0000	0,0000	0,0000	HITAM
106.png	239,1163	55,8316	-3,5638	239,1163	55,8316	-3,5638	239,1163	55,8316	-3,5638	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9377	0,2189	-3,5638	239,1163	55,8316	-3,5638	128,0000	0,0000	-19,0787	128,0000	0,0000	0,0000	HITAM
107.png	239,5312	55,2126	-3,6246	239,5312	55,2126	-3,6246	239,5312	55,2126	-3,6246	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9393	0,2165	-3,6246	239,5312	55,2126	-3,6246	128,0000	0,0000	-19,3624	128,0000	0,0000	0,0000	HITAM
108.png	239,1505	55,8342	-3,5703	239,1505	55,8342	-3,5703	239,1505	55,8342	-3,5703	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9378	0,2190	-3,5703	239,1505	55,8342	-3,5703	128,0000	0,0000	-18,9376	128,0000	0,0000	0,0000	HITAM
109.png	245,0325	45,3718	-4,7008	245,0325	45,3718	-4,7008	245,0325	45,3718	-4,7008	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9609	0,1779	-4,7008	245,0325	45,3718	-4,7008	128,0000	0,0000	-25,4777	128,0000	0,0000	0,0000	HITAM
110.png	244,1049	46,8803	-4,4567	244,1049	46,8803	-4,4567	244,1049	46,8803	-4,4567	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9573	0,1838	-4,4567	244,1049	46,8803	-4,4567	128,0000	0,0000	-23,0014	128,0000	0,0000	0,0000	HITAM
111.png	243,6263	47,9585	-4,3689	243,6745	47,7424	-4,3661	243,6946	47,6469	-4,3657	0,0029	0,0382	13,8735	0,0028	0,0519	19,0051	0,9557	0,1868	-4,3661	243,6624	47,7944	-4,3663	128,0182	0,3272	17,6990	127,9743	0,4363	-17,8356	HITAM
112.png	243,9069	44,6864	-4,5897	240,9017	41,9971	-4,3853	235,0714	51,0316	-3,0114	0,0209	0,0702	5,4934	0,0606	0,1637	3,4387	0,9682	0,1432	-5,7127	241,1356	41,5589	-4,1792	124,5770	11,6914	-0,5034	129,9748	14,0297	0,9871	WARNA RENDAH
113.png	158,3796	46,0700	0,2064	182,4277	45,5026	-1,2987	106,6193	57,3522	1,8012	0,1723	0,1015	-0,2190	0,4053	0,2365	-0,8448	0,7155	0,1785	-1,2961	166,5952	44,6063	-0,3912	94,1599	21,8025	-0,2875	122,1164	5,1798	1,2486	WARNA TINGGI
114.png	236,9373	50,3017	-2,7926	235,7636	52,4141	-2,7203	232,9251	60,6535	-2,6353	0,0247	0,0991	5,5143	0,0407	0,1403	4,5473	0,9346	0,1904	-2,9882	235,7909	52,0930	-2,7081	126,3824	11,6783	-7,0649	128,8168	6,3541	2,5158	WARNA RENDAH
115.png	232,8145	58,7262	-2,8564	233,5826	59,6137	-3,1817	218,6372	78,2992	-1,9532	0,0428	0,1281	3,6806	0,1013	0,2568	2,4783	0,9405	0,1959	-3,9961	231,6492	56,8556	-2,8635	120,6571	23,0893	-3,5662	128,8265	20,5505	2,7947	WARNA TINGGI
116.png	221,9631	66,0938	-1,9230	213,0296	65,7172	-2,0382	151,1265	116,3252	-0,3733	0,1019	0,1574	1,9318	0,3832	0,4439	0,4512	0,9188	0,2048	-3,3459	208,6437	61,4947	-1,6332	95,5387	51,0523	-0,7448	137,4809	29,2315	1,6177	WARNA TINGGI
117.png	191,2361	100,4144	-1,1354	212,9386	68,4114	-1,9615	202,3600	92,8758	-1,5298	0,1505	0,2284	1,0764	0,3284	0,4373	0,7227	0,9265	0,1935	-3,7988	205,2436	68,2283	-1,2094	126,3784	43,6160	-1,1187	118,0056	43,4310	0,1048	WARNA TINGGI
118.png	236,3904	61,7899	-3,3149	232,3776	65,4682	-2,9677	199,2029	100,7577	-1,3314	0,0365	0,0923	2,9312	0,1955	0,3880	1,5365	0,9510	0,1812	-4,3385	229,7955	59,1618	-2,5868	110,7345	40,1855	-2,2155	132,6935	28,6281	2,1093	WARNA TINGGI
119.png	239,4181	48,2616	-3,4322	237,1341	57,1981	-3,5741	227,7798	70,2798	-2,3527	0,0198	0,0704	3,8461	0,0737	0,2249	2,9555	0,9570	0,1620	-4,8463	236,7506	51,8122	-3,1390	122,9369	15,2054	-2,7259	129,8997	21,5968	5,1498	WARNA RENDAH
120.png	244,3120	48,7849	-4,4947	246,0209	41,3394	-4,6381	246,3990	38,7445	-4,8341	0,0210	0,1056	5,0905	0,0335	0,1678	4,9508	0,9725	0,1326	-5,4092	245,5531	42,6276	-4,5459	128,4779	11,1510	-3,6090	127,1149	5,7887	-5,0600	WARNA RENDAH
121.png	254,3183	12,4193	-19,1899	254,3183	12,4193	-19,1899	254,3183	12,4193	-19,1899	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9973	0,0487	-19,1899	254,3183	12,4193	-19,1899	128,0000	0,0000	-88,0828	128,0000	0,0000	0,0000	HITAM
122.png	248,5246	37,7202	-6,0026	248,5246	37,7202	-6,0026	248,5246	37,7202	-6,0026	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9746	0,1479	-6,0026	248,5246	37,7202	-6,0026	128,0000	0,0000	-34,0877	128,0000	0,0000	0,0000	HITAM
123.png	254,7079	8,1286	-29,3485	254,7079	8,1286	-29,3485	254,7079	8,1286	-29,3485	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9989	0,0319	-29,3485	254,7079	8,1286	-29,3485	128,0000	0,0000	-151,4866	128,0000	0,0000	0,0000	HITAM
124.png	245,8401	44,6674	-4,9585	245,8401	44,6674	-4,9585	245,8401	44,6674	-4,9585	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9641	0,1752	-4,9585	245,8401	44,6674	-4,9585	128,0000	0,0000	-30,6951	128,0000	0,0000	0,0000	HITAM
125.png	252,6995	22,7508	-10,3342	252,6995	22,7508	-10,3342	252,6995	22,7508	-10,3342	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9910	0,0892	-10,3342	252,6995	22,7508	-10,3342	128,0000	0,0000	-60,7197	128,0000	0,0000	0,0000	HITAM
126.png	245,2611	43,6201	-4,4899	248,4018	33,7673	-6,1247	249,8227	31,8958	-7,1199	0,0167	0,0946	5,5020	0,0197	0,1160	5,8177	0,9797	0,1251	-7,1199	247,6247	35,5551	-5,5227	129,2412	7,2932	5,7962	126,3145	9,9685	-5,8568	WARNA RENDAH
127.png	248,0119	38,7049	-5,6948	248,0183	38,6720	-5,6965	248,0375	38,5785	-5,7017	0,0050	0,0556	11,1372	0,0006	0,0076	13,9748	0,9727	0,1513	-5,7017	248,0186	38,6711	-5,6966	128,0107	0,1260	12,3138	127,9952	0,0578	-12,2923	HITAM
128.png	248,7797	36,4143	-6,0492	248,7865	36,3777	-6,0513	248,8064	36,2741	-6,0573	0,0052	0,0570	10,8606	0,0006	0,0077	13,7038	0,9757	0,1423	-6,0573	248,7867	36,3768	-6,0513	128,0111	0,1284	12,0990	127,9950	0,0591	-12,0169	HITAM
129.png	248,6072	35,1923	-5,8442	248,6177	35,1337	-5,8457	248,6486	34,9674	-5,8500	0,0080	0,0705	8,6937	0,0009	0,0096	10,9810	0,9751	0,1371	-5,8500	248,6181	35,1321	-5,8457	128,0172	0,1595	9,6473	127,9922	0,0733	-9,5984	HITAM
130.png	249,3769	32,5585	-6,4559	249,6940	32,2655	-6,6015	249,8034	32,0441	-6,6327	0,0169	0,0977	5,6496	0,0026	0,0161	6,2158	0,9796	0,1257	-6,6327	249,6117	32,3066	-6,5712	128,1083	0,7346	7,3882	127,8326	1,2716	-7,8473	WARNA RENDAH
131.png	244,8564	46,9833	-4,6856	244,8564	46,9833	-4,6856	244,8564	46,9833	-4,6856	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9602	0,1842	-4,6856	244,8564	46,9833	-4,6856	128,0000	0,0000	-29,9315	128,0000	0,0000	0,0000	HITAM
132.png	247,6622	40,1584	-5,6090	247,6622	40,1584	-5,6090	247,6622	40,1584	-5,6090	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9712	0,1575	-5,6090	247,6622	40,1584	-5,6090	128,0000	0,0000	-34,8698	128,0000	0,0000	0,0000	HITAM
133.png	247,9158	38,9773	-5,6618	247,9210	38,9509	-5,6632	247,9365	38,8763	-5,6675	0,0040	0,0501	12,3937	0,0005	0,0067	15,6590	0,9723	0,1525	-5,6675	247,9212	38,9502	-5,6632	128,0086	0,1133	13,7311	127,9961	0,0520	-13,6801	HITAM
134.png	250,2793	29,2252	-6,8620	250,2817	29,2091	-6,8621	250,2887	29,1633	-6,8625	0,0018	0,0339	18,4493	0,0002	0,0046	23,2659	0,9815	0,1144	-6,8625	250,2818	29,2086	-6,8621	128,0039	0,0763	20,4802	127,9982	0,0351	-20,4313	HITAM
135.png	247,1888	41,1294	-5,4112	247,1888	41,1294	-5,4112	247,1888	41,1294	-5,4112	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9694	0,1613	-5,4112	247,1888	41,1294	-5,4112	128,0000	0,0000	-28,7068	128,0000	0,0000	0,0000	HITAM
136.png	248,4640	37,1641	-5,9600	248,4640	37,1641	-5,9600	248,4640	37,1641	-5,9600	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9744	0,1457	-5,9600	248,4640	37,1641	-5,9600	128,0000	0,0000	-26,1868	128,0000	0,0000	0,0000	HITAM
137.png	246,5841	42,8109	-5,1953	246,5841	42,8109	-5,1953	246,5841	42,8109	-5,1953	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9670	0,1679	-5,1953	246,5841	42,8109	-5,1953	128,0000	0,0000	-31,6107	128,0000	0,0000	0,0000	HITAM
138.png	246,3121	43,2838	-5,0867	246,3121	43,2838	-5,0867	246,3121	43,2838	-5,0867	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9659	0,1697	-5,0867	246,3121	43,2838	-5,0867	128,0000	0,0000	-29,9934	128,0000	0,0000	0,0000	HITAM
139.png	246,4607	43,1851	-5,1580	246,4607	43,1851	-5,1580	246,4607	43,1851	-5,1580	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9665	0,1694	-5,1580	246,4607	43,1851	-5,1580	128,0000	0,0000	-31,4682	128,0000	0,0000	0,0000	HITAM
140.png	252,8410	22,2987	-10,6947	252,8410	22,2987	-10,6947	252,8410	22,2987	-10,6947	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9915	0,0874	-10,6947	252,8410	22,2987	-10,6947	128,0000	0,0000	-69,0717	128,0000	0,0000	0,0000	HITAM
141.png	246,7920	42,3998	-5,2722	246,7920	42,3998	-5,2722	246,7920	42,3998	-5,2722	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9678	0,1663	-5,2722	246,7920	42,3998	-5,2722	128,0000	0,0000	-32,5558	128,0000	0,0000	0,0000	HITAM
142.png	247,1439	41,5022	-5,4013	247,1439	41,5022	-5,4013	247,1439	41,5022	-5,4013	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,9692	0,1628	-5,4013	247,1439	41,5022	-5,4013	128,0000	0,0000	-33,9384	128,0000	0,0000	0,0000	HITAM
143.png	248,2079	37,3420	-5,9920	248,5012	37,1691	-6,0874	248,5814	37,1498	-6,1018	0,0112	0,0790	7,1543	0,0018	0,0191	28,9633	0,9749	0,1455	-6,1095	248,4226	37,1955	-6,0672	128,0897	1,0247	4,0646	127,8469	1,3445	-6,4994	WARNA RENDAH
144.png	246,4662	41,7645	-5,2655	246,7829	41,6127	-5,3390	246,8622	41,5979	-5,3498	0,0086	0,0671	7,6968	0,0017	0,0130	7,7264	0,9681	0,1631	-5,3498	246,6972	41,6391	-5,3237	128,0932	0,7324	7,7491	127,8352	1,2950	-7,7502	WARNA RENDAH
145.png	247,4177	39,3216	-5,6368	247,7365	39,1490	-5,7253	247,8161	39,1315	-5,7382	0,0087	0,0674	7,6513	0,0017	0,0130	7,6860	0,9718	0,1535	-5,7382	247,6503	39,1802	-5,7069	128,0937	0,7337	7,7352	127,8341	1,2985	-7,7301	WARNA RENDAH
146.png	247,8196	19,2814	-7,3649	239,3895	40,0171	-2,9589	238,1231	44,0005	-2,9331	0,0036	0,0321	17,4646	0,0434	0,1504	3,2272	0,9720	0,0749	-7,4079	241,7657	32,8357	-3,1504	125,9421	7,2579	-3,1558	132,3176	15,1147	3,2266	WARNA RENDAH
147.png	246,8885	33,3554	-5,7577	247,9867	32,1119	-6,4108	247,1631	33,2597	-5,8634	0,0348	0,1202	3,5175	0,0073	0,0347	10,7297	0,9734	0,1242	-6,5530	247,5644	32,5018	-6,1658	127,7738	2,0890	-6,9373	127,5176	2,6204	4,6509	WARNA RENDAH
148.png	249,3093	32,6590	-6,4068	249,2066	33,0515	-6,3230	248,9991	34,1895	-6,2161	0,0126	0,0847	7,3645	0,0053	0,0539	12,5951	0,9783	0,1267	-6,4899	249,2136	33,0061	-6,3308	127,8789	2,1405	-9,8895	128,0682	1,7829	15,3673	WARNA RENDAH
149.png	251,3770	24,0765	-8,8486	251,5658	23,3316	-9,1940	251,5873	23,4293	-9,1530	0,0105	0,0773	7,4853	0,0019	0,0272	22,3718	0,9871	0,0902	-9,4502	251,5118	23,4775	-9,0829	128,0427	1,9913	22,6126	127,9039	1,8960	-23,1973	WARNA RENDAH
150.png	247,8879	34,7468	-5,4108	247,8648	35,3502	-5,4228	247,2381	38,6815	-5,2736	0,0233	0,1101	5,4895	0,0154	0,0896	7,1428	0,9745	0,1316	-5,6794	247,8003	35,4174	-5,3866	127,6827	3,8143	-6,1335	128,0623	2,6513	9,9947	WARNA RENDAH

Lampiran 3 *Source code* Sistem

Source code konversi file pdf

```
% Buat path lengkap untuk file PDF
pdfPath = fullfile(filepath, pdfFilename);

% Muat file PDF menggunakan PDFBox
pdfFile = java.io.File(pdfPath);
pdfDoc = org.apache.pdfbox.pdmodel.PDDocument.load(pdfFile);

% Buat objek PDFRenderer dari dokumen PDF
pdfRenderer = org.apache.pdfbox.rendering.PDFRenderer(pdfDoc);

% Hitung jumlah halaman di dokumen
numPages = pdfDoc.getNumberOfPages();
% Loop untuk setiap halaman, merender dan menyimpan gambar ke folder output
for pageIdx = 1:numPages
% Render gambar halaman dengan resolusi 300 dpi
image          =          pdfRenderer.renderImageWithDPI(pageIdx-1,          300,
org.apache.pdfbox.rendering.ImageType.RGB);

% Buat nama file untuk gambar yang dihasilkan
imageName = sprintf('%s_Page%03d.png', pdfFilename, pageIdx);

% Buat path lengkap untuk gambar yang dihasilkan
outputPath = fullfile(outputFolder, imageName);

% Simpan gambar ke file PNG di folder output
org.apache.pdfbox.tools.imageio.ImageIOUtil.writeImage(image, outputPath, 300);
end
```

Source Code konversi *RGB* ke *HSV*

```
hsv = rgb2hsv(Img);
        % mengekstrak citra hsv
        h = hsv(:,:,1); % Hue
        s = hsv(:,:,2); % Saturation
        v = hsv(:,:,3); % Value
```

Source Code konversi *RGB* ke *YCbCr*

```
% konversi citra RGB ke ruang warna YCbCr
% Ambil saluran warna R, G, dan B
R = double(Img(:, :, 1));
G = double(Img(:, :, 2));
B = double(Img(:, :, 3));
% Hitung komponen YCbCr
Y = 0.299 * R + 0.587 * G + 0.114 * B;
Cb = -0.169 * R - 0.331 * G + 0.5 * B + 128;
Cr = 0.5 * R - 0.419 * G - 0.081 * B + 128;
```

Source Code ekstraksi fitur

```
% ekstraksi momen warna pada tiap kanal RGB, HSV, dan YCbCr
avgR = mean(r(:));
avgG = mean(g(:));
avgB = mean(b(:));
stdR = std(double(r(:)));
stdG = std(double(g(:)));
stdB = std(double(b(:)));
skewR = skewness(double(r(:)));
skewG = skewness(double(g(:)));
skewB = skewness(double(b(:)));
avgH = mean(h(:));
avgS = mean(s(:));
avgV = mean(v(:));
stdH = std(h(:));
stdS = std(s(:));
stdV = std(v(:));
skewH = skewness(h(:));
skewS = skewness(s(:));
skewV = skewness(v(:));
avgY = mean(Y(:));
avgCb = mean(Cb(:));
avgCr = mean(Cr(:));
stdY = std(double(Y(:)));
stdCb = std(double(Cb(:)));
stdCr = std(double(Cr(:)));
skewY = skewness(double(Y(:)));
skewCb = skewness(double(Cb(:)));
```

```
        skewCr = skewness(double(Cr(:)));

        if isnan(skewH)
            % Jika NaN, ganti dengan 0
            skewH = 0;
        end
        if isnan(skewS)
            % Jika NaN, ganti dengan 0
            skewS = 0;
        end
        if isnan(skewV)
            % Jika NaN, ganti dengan 0
            skewV = 0;
        end

        if isnan(skewY)
            % Jika NaN, ganti dengan 0
            skewY = 0;
        end
        if isnan(skewCb)
            % Jika NaN, ganti dengan 0
            skewCb = 0;
        end
        if isnan(skewCr)
            % Jika NaN, ganti dengan 0
            skewCr = 0;
        end

    % Menyimpan nama file
    nama_file_cell{n} = nama_file(n).name;
    % Menyimpan ciri-ciri citra
    fitur_all(n, :) = [avgR, stdR, skewR, avgG, stdG, skewG, avgB, stdB, skewB,
avgH, stdH, skewH, avgS, stdS, skewS, avgV, stdV, skewV, avgY, stdY, skewY,
avgCb, stdCb, skewCb, avgCr, stdCr, skewCr];

    % Menyimpan target untuk setiap citra
    target_all{n} = target_kelas{n};
```

Source Code pembagian data dengan k-fold

```
% Pisahkan fitur dan target kelas
X = fitur_all; % Fitur
y = categorical(target_all); % Kelas target

% Dapatkan label kategori unik
class_labels = categories(y);

% Definisikan k untuk k-NN
k = 3;

% Definisikan jumlah fold untuk k-fold cross-validation
num_folds = 5;

% K-fold cross-validation
indices = crossvalind('Kfold', numel(y), num_folds);

for i = 1:num_folds
    test_indices = (indices == i);
    train_indices = ~test_indices;

    % X_train = X(train_indices, :);
    X_train = X(train_indices, 1:27); % Penggunaan fitur
    y_train = y(train_indices);
    X_test = X(test_indices, 1:27);
    y_test = y(test_indices);
    test_names{i} = nama_file_cell(test_indices); % Simpan nama data uji
```

Source Code pelatihan *KNN*

```
    % Klasifikasi menggunakan k-NN
    Mdl = fitcknn(X_train, y_train, 'NumNeighbors', k);
    y_pred = predict(Mdl, X_test);
```

Source Code Matriks evaluasi

```
% Inisialisasi variabel untuk menyimpan hasil evaluasi
accuracy = zeros(num_folds, 1);
sensitivity = zeros(num_folds, length(class_labels)); % Sensitivitas untuk
masing-masing kelas
```

```
specificity = zeros(num_folds, length(class_labels)); % Spesifisitas untuk masing-masing kelas
f1_score = zeros(num_folds, length(class_labels)); % F1-score untuk masing-masing kelas
confusion_matrices = cell(num_folds, 1);
test_names = cell(num_folds, 1); % Menyimpan nama data uji tiap fold

% Hitung matriks evaluasi
    confusion_matrix = confusionmat(y_test, y_pred, 'Order', class_labels);
    confusion_matrices{i} = confusion_matrix;

    % Hitung metrik evaluasi
    accuracy(i) = sum(diag(confusion_matrix)) / sum(confusion_matrix(:));
    for j = 1:length(class_labels)
        sensitivity(i, j) = confusion_matrix(j, j) / sum(confusion_matrix(j, :));
        specificity(i, j) = (sum(confusion_matrix(:)) - sum(confusion_matrix(j, :)) - sum(confusion_matrix(:, j)) + confusion_matrix(j, j)) / ...
                            (sum(confusion_matrix(:)) - sum(confusion_matrix(j, :)));
        precision = confusion_matrix(j, j) / sum(confusion_matrix(:, j));
        recall = sensitivity(i, j);
        f1_score(i, j) = 2 * (precision * recall) / (precision + recall);
    end
end

% Hitung rata-rata hasil evaluasi
avg_accuracy = mean(accuracy);
avg_sensitivity = mean(sensitivity);
avg_specificity = mean(specificity);
avg_f1_score = mean(f1_score);
```

Source Code save model

```
save('HSV_YCbCr.mat', 'Mdl'); % Save model KNN
```

Source Code pengujian model

```
load HSV+YCbCr.mat % Load model yang digunakan


        % Memprediksi kelas
```

```
        kelas_keluaran = predict(Mdl, ciri_uji);

        % Menyimpan hasil prediksi untuk file saat ini
        hasil_prediksi{n, 1} = daftar_file(n).name;
        hasil_prediksi{n, 2} = kelas_keluaran{1};

    % Menampilkan hasil prediksi untuk setiap file
    disp('Hasil Prediksi HSV+YCbCr:'); %print hasil prediksi model , disini
disesuaikan dengan model yang digunakan
    disp(hasil_prediksi);
```

Source Code GUI Sistem

```
classdef klasifikasidokumen_Copy < matlab.apps.AppBase

% Properties that correspond to app components
properties (Access = public)
UIFigure matlab.ui.Figure
SISTEMKLASIFIKASIJENISWARNADOKUMENLabel matlab.ui.control.Label
WaktuProsesEditField matlab.ui.control.EditField
WaktuProsesEditFieldLabel matlab.ui.control.Label
Image2 matlab.ui.control.Image
EditField_3 matlab.ui.control.EditField
EditField_2 matlab.ui.control.EditField
EditField matlab.ui.control.EditField
Image matlab.ui.control.Image
RefreshButton matlab.ui.control.Button
TotalHargaEditField matlab.ui.control.EditField
TotalHargaEditFieldLabel matlab.ui.control.Label
HalamanberwarnatinggiEditField matlab.ui.control.EditField
HalamanberwarnatinggiEditFieldLabel matlab.ui.control.Label
halamanberwarnarendahEditField matlab.ui.control.EditField
halamanberwarnarendahEditFieldLabel matlab.ui.control.Label
halamantanpawarnaEditField matlab.ui.control.EditField
halamantanpawarnaEditFieldLabel matlab.ui.control.Label
PilihFileButton matlab.ui.control.Button
end

% Callbacks that handle component events
methods (Access = private)
```

```
% Button pushed function: PilihFileButton
function PilihFileButtonPushed(app, event)

% Tampilkan animasi loading
app.Image2.Visible = 'on';

% Memilih file PDF dari sistem
[filename, filepath] = uigetfile('*.pdf', 'Pilih File PDF');
outputFolder = 'out_images';

% Mulai penghitungan waktu
startTime = tic;

% Memeriksa apakah file dipilih atau tidak
if isequal(filename,0)
% Sembunyikan animasi loading setelah proses selesai
app.Image2.Visible = 'off';
return;
else
% Tentukan nama file PDF dan nama folder untuk menyimpan gambar
pdfFilename = filename;

% Pastikan folder untuk menyimpan gambar sudah ada, jika belum maka buat folder
baru
if ~exist(outputFolder, 'dir')
mkdir(outputFolder);
else
% Menghapus isi folder output sebelum menjalankan proses konversi lagi
delete(fullfile(outputFolder, '*'));
end

try
% Buat path lengkap untuk file PDF
pdfPath = fullfile(filepath, pdfFilename);

% Muat file PDF menggunakan PDFBox
pdfFile = java.io.File(pdfPath);
pdfDoc = org.apache.pdfbox.pdmodel.PDDocument.load(pdfFile);
```

```
% Buat objek PDFRenderer dari dokumen PDF
pdfRenderer = org.apache.pdfbox.rendering.PDFRenderer(pdfDoc);

% Hitung jumlah halaman di dokumen
numPages = pdfDoc.getNumberOfPages();

% Loop untuk setiap halaman, merender dan menyimpan gambar ke folder output
for pageIdx = 1:numPages
% Render gambar halaman dengan resolusi 300 dpi
image = pdfRenderer.renderImageWithDPI(pageIdx-1, 300,
org.apache.pdfbox.rendering.ImageType.RGB);

% Buat nama file untuk gambar yang dihasilkan
imageName = sprintf('%s_Page%03d.png', pdfFilename, pageIdx);

% Buat path lengkap untuk gambar yang dihasilkan
outputPath = fullfile(outputFolder, imageName);

% Simpan gambar ke file PNG di folder output
org.apache.pdfbox.tools.imageio.ImageIOUtil.writeImage(image, outputPath, 300);
end

% Tutup dokumen PDF
pdfDoc.close();

disp('Konversi PDF ke gambar selesai.');

catch ME
disp('Error during PDF to image conversion:');
disp(ME.message);
if exist('pdfDoc', 'var')
pdfDoc.close();
end
app.Image2.Visible = 'off';
% Selesaikan penghitungan waktu
elapsedTime = toc(startTime);
return;
end
```

```
end

% Memeriksa apakah folder dipilih atau tidak
load('HSV__YCbCr.mat'); %load model

% Mendapatkan daftar file citra dalam folder
imageFiles = dir(fullfile(outputFolder, '*.png')); % Ubah ekstensi sesuai dengan
format citra yang digunakan
numImages = numel(imageFiles);
disp(imageFiles);
% Matriks untuk menyimpan jumlah citra yang diklasifikasikan untuk setiap kelas
classCounts = zeros(1, 3);

% Inisialisasi array untuk menyimpan nomor halaman yang masuk ke setiap kelas
halamanKelas1 = [];
halamanKelas2 = [];
halamanKelas3 = [];

% Loop melalui setiap citra dalam folder
for i = 1:numImages
% Baca citra
imagePath = fullfile(outputFolder, imageFiles(i).name);
rgbImg = imread(imagePath);
% mengkonversi citra rgb ke citra hsv
hsv = rgb2hsv(rgbImg);
% mengekstrak citra hsv
h = hsv(:,:,1); % Hue
s = hsv(:,:,2); % Saturation
v = hsv(:,:,3); % Value

avgH = mean(h(:));
avgS = mean(s(:));
avgV = mean(v(:));
stdH = std(h(:));
stdS = std(s(:));
stdV = std(v(:));
skewH = skewness(h(:));
skewS = skewness(s(:));
skewV = skewness(v(:));
```

```
if isnan(skewH)
% Jika NaN, ganti dengan 0
skewH = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewH = skewH;
end
if isnan(skewS)
% Jika NaN, ganti dengan 0
skewS = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewS = skewS;
end
if isnan(skewV)
% Jika NaN, ganti dengan 0
skewV = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewV = skewV;
end

% konversi citra RGB ke ruang warna YCbCr
% Ambil saluran warna R, G, dan B
R = double(rgbImg(:, :, 1));
G = double(rgbImg(:, :, 2));
B = double(rgbImg(:, :, 3));

% Hitung komponen YCbCr tanpa menggunakan matriks transformasi
Y = 0.299 * R + 0.587 * G + 0.114 * B;
Cb = -0.169 * R - 0.331 * G + 0.5 * B + 128;
Cr = 0.5 * R - 0.419 * G - 0.081 * B + 128;

% hitung rata-rata, standar deviasi, dan skewness dari setiap saluran
avgY = mean(Y(:));
avgCb = mean(Cb(:));
avgCr = mean(Cr(:));
stdY = std(double(Y(:)));
```

```
stdCb = std(double(Cb(:)));
stdCr = std(double(Cr(:)));
skewY = skewness(double(Y(:)));
skewCb = skewness(double(Cb(:)));
skewCr = skewness(double(Cr(:)));

if isnan(skewY)
% Jika NaN, ganti dengan 0
skewY = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewY = skewY;
end
if isnan(skewCb)
% Jika NaN, ganti dengan 0
skewCb = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewCb = skewCb;
end
if isnan(skewCr)
% Jika NaN, ganti dengan 0
skewCr = 0;
else
% Jika bukan NaN, gunakan nilai skewness yang dihitung
skewCr = skewCr;
end

                % Ekstraksi fitur dari citra
                fitur_citra = [avgH, stdH, skewH, avgS, stdS, skewS, avgV, stdV,
skewV, avgY, stdY, skewY, avgCb, stdCb, skewCb, avgCr, stdCr, skewCr];

                % klasifikasi pada citra menggunakan model yang telah dimuat
                kelas_keluaran = predict(ndl, fitur_citra);

                % Simpan hasil klasifikasi dan tingkatkan hitungan kelas yang
sesuai
                for j = 1:numel(kelas_keluaran)
                    switch kelas_keluaran(j)
```

```
                        case 'HITAM'
                            classCounts(1) = classCounts(1) + 1;
                            halamanKelas1 = [halamanKelas1, i];
                        case 'WARNA RENDAH'
                            classCounts(2) = classCounts(2) + 1;
                            halamanKelas2 = [halamanKelas2, i];
                        case 'WARNA TINGGI'
                            classCounts(3) = classCounts(3) + 1;
                            halamanKelas3 = [halamanKelas3, i];
                    end
                end



                % Tampilkan jumlah citra yang diklasifikasikan untuk setiap
kelas di dalam teks box
                app.halamantanpawarnaEditField.Value = num2str(classCounts(1));
                app.halamanberwarnarendahEditField.Value =
num2str(classCounts(2));
                app.HalamanberwarnatinggiEditField.Value =
num2str(classCounts(3));

                % Tampilkan nomor halaman yang masuk ke setiap kelas di samping
teks box per kelas
                app.EditField.Value = strjoin(arrayfun(@num2str, halamanKelas1,
'UniformOutput', false), ', ');
                app.EditField_2.Value = strjoin(arrayfun(@num2str,
halamanKelas2, 'UniformOutput', false), ', ');
                app.EditField_3.Value = strjoin(arrayfun(@num2str,
halamanKelas3, 'UniformOutput', false), ', ');


                % Hitung total harga
                hargaKelas1 = 500;
                hargaKelas2 = 750;
                hargaKelas3 = 1000;

                totalHarga = (classCounts(1) * hargaKelas1) + (classCounts(2) *
hargaKelas2) + (classCounts(3) * hargaKelas3);
```

```
                % Tampilkan total harga di dalam teks box
                app.TotalHargaEditField.Value = num2str(totalHarga);

                % Sembunyikan animasi loading setelah proses selesai
                app.Image2.Visible = 'off';
                % Selesaikan penghitungan waktu
                elapsedTime = toc(startTime);

                % Tampilkan waktu yang diperlukan dalam detik
                app.WaktuProsesEditField.Value =  [num2str(elapsedTime) '
detik'];

            end
        end

        % Button pushed function: RefreshButton
        function RefreshButtonPushed(app, event)
            % Mengosongkan isian di dalam teks box
            app.halamantanpawarnaEditField.Value = '';
            app.halamanberwarnarendahEditField.Value = '';
            app.HalamanberwarnatinggiEditField.Value = '';
            app.EditField.Value = '';
            app.EditField_2.Value = '';
            app.EditField_3.Value = '';
            app.WaktuProsesEditField.Value = '';
            app.TotalHargaEditField.Value = '';
            %             delete(fullfile(outputFolder, '*'));
        end
    end

    % Component initialization
    methods (Access = private)

        % Create UIFigure and components
        function createComponents(app)

            % Get the file path for locating images
            pathToMLAPP = fileparts(mfilename('fullpath'));
```

```
            % Create UIFigure and hide until all components are created
            app.UIFigure = uifigure('Visible', 'off');
            app.UIFigure.Position = [100 100 640 480];
            app.UIFigure.Name = 'MATLAB App';

            % Create PilihFileButton
            app.PilihFileButton = uibutton(app.UIFigure, 'push');
            app.PilihFileButton.ButtonPushedFcn = createCallbackFcn(app,
@PilihFileButtonPushed, true);
            app.PilihFileButton.Position = [309 332 100 23];
            app.PilihFileButton.Text = 'Pilih File';

            % Create halamantanpawarnaEditFieldLabel
            app.halamantanpawarnaEditFieldLabel = uilabel(app.UIFigure);
            app.halamantanpawarnaEditFieldLabel.HorizontalAlignment = 'right';
            app.halamantanpawarnaEditFieldLabel.Position = [173 298 121 22];
            app.halamantanpawarnaEditFieldLabel.Text = 'halaman tanpa warna';

            % Create halamantanpawarnaEditField
            app.halamantanpawarnaEditField = uieditfield(app.UIFigure, 'text');
            app.halamantanpawarnaEditField.Editable = 'off';
            app.halamantanpawarnaEditField.Position = [309 298 42 22];

            % Create halamanberwarnarendahEditFieldLabel
            app.halamanberwarnarendahEditFieldLabel = uilabel(app.UIFigure);
            app.halamanberwarnarendahEditFieldLabel.HorizontalAlignment =
'right';
            app.halamanberwarnarendahEditFieldLabel.Position = [148 263 146 22];
            app.halamanberwarnarendahEditFieldLabel.Text = 'halaman berwarna
rendah';

            % Create halamanberwarnarendahEditField
app.halamanberwarnarendahEditField = uieditfield(app.UIFigure, 'text');
app.halamanberwarnarendahEditField.Editable = 'off';
app.halamanberwarnarendahEditField.Position = [309 263 42 22];

% Create HalamanberwarnatinggiEditFieldLabel
app.HalamanberwarnatinggiEditFieldLabel = uilabel(app.UIFigure);
```

```
app.HalamanberwarnatinggiEditFieldLabel.HorizontalAlignment = 'right';
app.HalamanberwarnatinggiEditFieldLabel.Position = [155 227 139 22];
app.HalamanberwarnatinggiEditFieldLabel.Text = 'Halaman berwarna tinggi';

% Create HalamanberwarnatinggiEditField
app.HalamanberwarnatinggiEditField = uieditfield(app.UIFigure, 'text');
app.HalamanberwarnatinggiEditField.Editable = 'off';
app.HalamanberwarnatinggiEditField.Position = [309 227 42 22];

% Create TotalHargaEditFieldLabel
app.TotalHargaEditFieldLabel = uilabel(app.UIFigure);
app.TotalHargaEditFieldLabel.HorizontalAlignment = 'right';
app.TotalHargaEditFieldLabel.Position = [227 196 67 22];
app.TotalHargaEditFieldLabel.Text = 'Total Harga';

% Create TotalHargaEditField
app.TotalHargaEditField = uieditfield(app.UIFigure, 'text');
app.TotalHargaEditField.Editable = 'off';
app.TotalHargaEditField.Position = [309 196 100 22];

% Create RefreshButton
app.RefreshButton = uibutton(app.UIFigure, 'push');
app.RefreshButton.ButtonPushedFcn = createCallbackFcn(app, @RefreshButtonPushed,
true);
app.RefreshButton.Position = [309 166 100 23];
app.RefreshButton.Text = 'Refresh';

% Create Image
app.Image = uiimage(app.UIFigure);
app.Image.Position = [17 368 100 100];
app.Image.ImageSource = fullfile(pathToMLAPP, 'Gambar1.png');

% Create EditField
app.EditField = uieditfield(app.UIFigure, 'text');
app.EditField.Editable = 'off';
app.EditField.Position = [368 298 247 22];

% Create EditField_2
app.EditField_2 = uieditfield(app.UIFigure, 'text');
```

```
app.EditField_2.Editable = 'off';
app.EditField_2.Position = [368 263 247 22];

% Create EditField_3
app.EditField_3 = uieditfield(app.UIFigure, 'text');
app.EditField_3.Editable = 'off';
app.EditField_3.Position = [368 227 247 22];

% Create Image2
app.Image2 = uiimage(app.UIFigure);
app.Image2.Visible = 'off';
app.Image2.Position = [338 354 42 70];
app.Image2.ImageSource = fullfile(pathToMLAPP, 'loading.gif');

% Create WaktuProsesEditFieldLabel
app.WaktuProsesEditFieldLabel = uilabel(app.UIFigure);
app.WaktuProsesEditFieldLabel.HorizontalAlignment = 'right';
app.WaktuProsesEditFieldLabel.Position = [9 18 79 22];
app.WaktuProsesEditFieldLabel.Text = 'Waktu Proses';

% Create WaktuProsesEditField
app.WaktuProsesEditField = uieditfield(app.UIFigure, 'text');
app.WaktuProsesEditField.Editable = 'off';
app.WaktuProsesEditField.Position = [108 18 100 22];

% Create SISTEMKLASIFIKASIJENISWARNADOKUMENLabel
app.SISTEMKLASIFIKASIJENISWARNADOKUMENLabel = uilabel(app.UIFigure);
app.SISTEMKLASIFIKASIJENISWARNADOKUMENLabel.Interpreter = 'latex';
app.SISTEMKLASIFIKASIJENISWARNADOKUMENLabel.FontWeight = 'bold';
app.SISTEMKLASIFIKASIJENISWARNADOKUMENLabel.Position = [198 435 321 22];
app.SISTEMKLASIFIKASIJENISWARNADOKUMENLabel.Text = 'SISTEM KLASIFIKASI JENIS
WARNA DOKUMEN';

% Show the figure after all components are created
app.UIFigure.Visible = 'on';
end
end

% App creation and deletion
```

```
methods (Access = public)

% Construct app
function app = klasifikasidokumen_Copy

% Create UIFigure and components
createComponents(app)

% Register the app with App Designer
registerApp(app, app.UIFigure)

if nargout == 0
clear app
end
end

% Code that executes before app deletion
function delete(app)

% Delete UIFigure when app is deleted
delete(app.UIFigure)
end
end
end
```