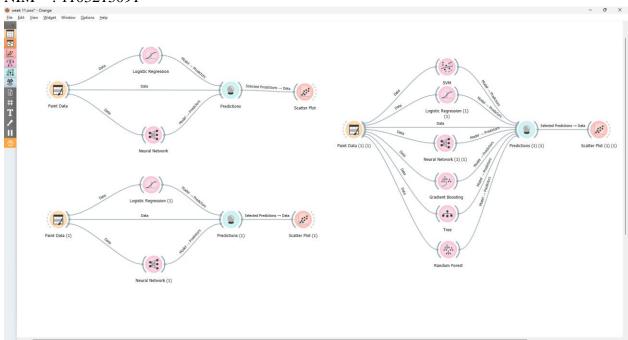
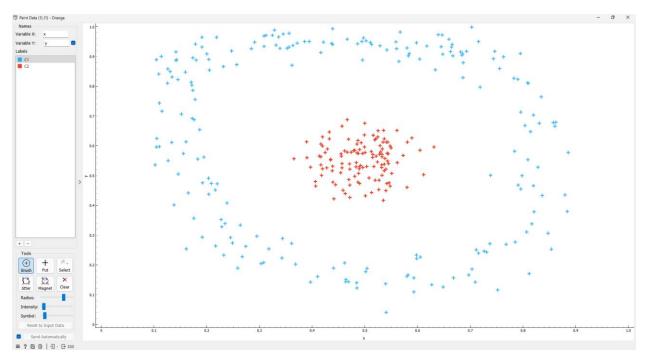
WEEK 10 Orange

Nama: Rizki Ramadhan

NIM : 1103213091



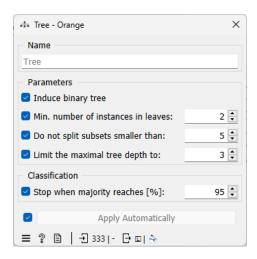
Paint data



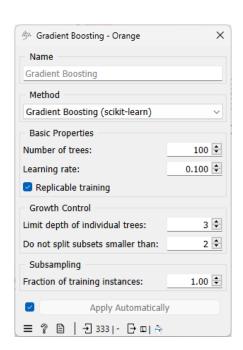
Model SVM



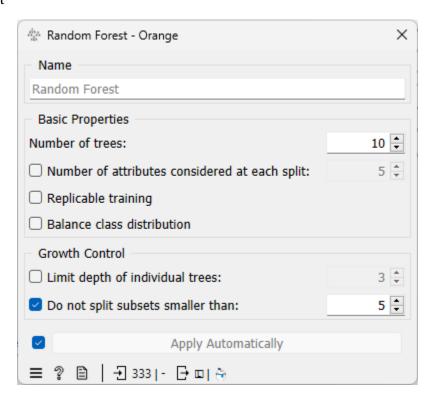
Decision Tree



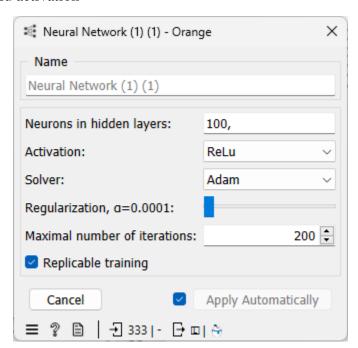
XGB



Random Forest



Neural Network ReLu activation



Hasil Predection

how probabilities for Classi	es in data	~ 2	Show o	classification errors											Restore Origi
Logistic Regression (1) () error	Neural Network (1) (1)	error	Gradient Boosting	error	Tree	error	Random Forest e	error	SVM 4	rror	Class	×	у	
0.62:0.38 C1	0.625	0.10:0.90 - C2	0.100	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.01:0.99 → C2 0.1	006 02		0.540404	0.612763	
0.62 ; 0.38 → C1	0.616	0.06:0.94 C2	0.065	0.00: 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.00:1.00 → C2 0.0	03 02		0.532699	0.570442	
0.63 : 0.37 → C1	0.626	0.06 : 0.94 C2	0.060	0.00 : 1.00 → C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000	.00 : 1.00 → C2 0.0	X03 C2		0.454925	0.572684	
0.62: 0.38 → C1	0.616	0.08:0.92 - C2	0.078	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.00 : 1.00 → C2 0.0	004 02		0.542559	0.575855	
0.62:0.38 → C1	0.621	0.05:0.95 - C2	0.047	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.00: 1.00 - C2 0.0	000 (2		0.49526	0.57386	
0.61 : 0.39 → C1	0.611	0.06:0.94 C2	0.057	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	00:1.00 - C2 0.0	000 02		0.52409	0.545984	
7 0.63: 0.37 C1	0.626	0.05:0.95 - C2	0.050	0.00 : 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 - C2 0.0	000 0	.00:1.00 → C2 0.0	03 02		0.498934	0.595571	
0.61:0.39 → C1	0.610	0.13:0.87 - C2	0.131	0.00: 1.00 - C2	0.001	0.12:0.88 - C2	0.121	0.00 : 1.00 → C2 0.0	000	.01:0.99 → C2 0.1	07 (2		0.572788	0.567163	
0.64: 0.36 - C1	0.635	0.09:0.91 - C2	0.091	0.00:1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 - C2 0.0	000	.01:0.99 - C2 0.0	006		0.49925	0.636493	
0.63:0.37 → C1	0.626	0.05 : 0.95 → C2	0.048	0.00:1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	00:1.00 - C2 0.0	000 (2		0.480459	0.584712	
0.63:0.37 - C1	0.629	0.08:0.92 - C2	0.081	0.00: 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.00 : 1.00 → C2 0.0	005 C2		0.519254	0.620206	
0.62 : 0.38 → C1	0.616	0.05:0.95 C2	0.054	0.00 : 1.00 → C2	0.001	0.12:0.88 - C2	0.121	0.00 : 1.00 → C2 0.0	000 0	.00 : 1.00 → C2 0.0	000 (2		0.521361	0.56516	
3 0.61:0.39 → C1	0.612	0.06: 0.94 C2	0.062	0.00: 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 → C2 0.0	000 0	.00:1.00 → C2 0.0	000 02		0.471644	0.521904	
4 0.62: 0.38 → C1	0.624	0.08:0.92 - C2	0.082	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 → C2 0.0	000 0	.00:1.00 → C2 0.0	04 02		0.435207	0.554947	
5 0.60: 0.40 C1	0.602	0.08:0.92 C2	0.075	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 - C2 0.0	000 0	.00:1.00 → C2 0.0	03 02		0.536743	0.516529	
0.61:0.39 → C1	0.610	0.06: 0.94 C2	0.057	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00: 1.00 → C2 0.0	000 0	.00: 1.00 → C2 0.0	000 (2		0.48905	0.523002	
0.59: 0.41 → C1	0.588	0.15:0.85 - C2	0.148	0.00: 1.00 C2	0.001	0.12:0.88 - C2	0.121	0.00 : 1.00 → C2 0.0	000 0	.01:0.99 → C2 0.0	008		0.526521	0.452961	
0.59:0.41 → C1	0.586	0.15:0.85 - C2	0.152	0.00:1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.03:0.97 - C2 0.0	029 0	.01:0.99 → C2 0.0	11 0		0.540098	0.449478	
0.63 : 0.37 → C1	0.628	0.10:0.90 - C2	0.104	0.00:1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	01:0.99 - C2 0.0	07 02		0.537032	0.623029	
0.61:0.39 - C1	0.612	0.07:0.93 → C2	0.068	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 0	0.121	0.00 : 1.00 → C2 0.0	000 0	00:1.00 - C2 0.0	003 62		0.538026	0.557653	
1 0.62:0.38 → C1	0.619	0.10:0.90 - C2	0.098	0.00: 1.00 C2	0.001	0.12:0.88 - C2 0	0.121	0.00 : 1.00 → C2 0.0	000 0	01:0.99 - C2 0.0	005 (2		0.549937	0.593074	
2 0.62: 0.38 - C1	0.625	0.05 : 0.95 - C2	0.047	0.00:1.00 - C2	0.001	0.12 : 0.88 - C2 (0.121	0.00 : 1.00 - C2 0.0	000 0	.00: 1.00 - C2 0.0	000 02		0.490182	0.587027	
3 0.62:0.38 - C1	0.616	0.05:0.95 - C2	0.051	0.00: 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 → C2 0.0	000 0	.00:1.00 - C2 0.0	000 02		0.470804	0.539601	
4 0.63: 0.37 - C1	0.626	0.05:0.95 - C2	0.048	0.00: 1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00:1.00 - C2 0.0	000 0	.00 : 1.00 → C2 0.0	000 (2		0.478919	0.58451	
0.61:0.39 → C1	0.610	0.05:0.95 - C2	0.055	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 0	0.121	0.00: 1.00 - C2 0.0	000 0	.00 : 1.00 → C2 0.1	000 02		0.496354	0.527329	
0.62:0.38 - C1	0.624	0.06:0.94 - C2	0.057	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 0	0.121	0.00:1.00 - C2 0.0	000 0	.00: 1.00 - C2 0.1	03 (2		0.455686	0.565189	
0.59: 0.41 - C1	0.593	0.20 : 0.80 - C2	0.198	0.00 : 1.00 - C2	0.001	0.12:0.88 - C2 (0.121	0.13:0.87 - C2 0.1	129 0	.01:0.99 → C2 0.0	13		0.463106	0.439669	
0.60: 0.40 C1	0.596	0.10:0.90 - C2	0.096	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 0	0.121	0.00 : 1.00 → C2 0.0	000 0	.00 : 1.00 → C2 0.0	04 62		0.526778	0.48468	
9 0.61:0.39 → C1	0.608	0.07:0.93 - C2	0.068	0.00 : 1.00 → C2	0.001	0.12:0.88 - C2 0	0.121	0.00:1.00 - C2 0.0	000 0	.00 : 1.00 → C2 0.0	03 (2		0.536611	0.537879	
0.60:0.40 → C1	0.599	0.08:0.92 - C2	0.082	0.00 : 1.00 C2	0.001	0.12:0.88 - C2 (0.121	0.00 : 1.00 - C2 0.0	000 0	.00: 1.00 - C2 0.1	04 02		0.532578	0.50067	
											- 4		III O SSESSIO	110.20007	
Show perforance scores		get class: (Average ove	r classe	s) ~											
		1 Prec Recall MCC													
ogistic Regression (1) (1) 0.61															
		000 1.000 1.000 1.000													
		000 1.000 1.000 1.000													
		950 0.955 0.949 0.899													
		997 0.997 0.997 0.994													
VM 1.00	0 1,000 1.0	000 1,000 1,000 1,000													

Model	AUC	CA	F1	Prec	Recall	MCC
Logistic Regression (1) (1)	0.610	0.595	0.468	0.386	0.595	-0.142
Neural Network (1) (1)	1.000	1.000	1.000	1.000	1.000	1.000
Gradient Boosting	1.000	1.000	1.000	1.000	1.000	1.000
Tree	0.959	0.949	0.950	0.955	0.949	0.899
Random Forest	1.000	0.997	0.997	0.997	0.997	0.994
SVM	1.000	1.000	1.000	1.000	1.000	1.000

Berdasarkan hasil yang ditampilkan, **Logistic Regression** menunjukkan performa yang buruk dengan AUC hanya 0.610, akurasi 59,5%, F1 score 0.468, dan MCC negatif (-0.142), yang berarti model ini tidak efektif dalam membedakan kelas positif dan negatif. Precision yang sangat rendah (0.386) menunjukkan banyaknya kesalahan dalam mengklasifikasikan kelas negatif sebagai positif, meskipun recall yang lebih tinggi (0.595) menunjukkan model lebih baik dalam mendeteksi kelas positif.

Sebaliknya, **Tree, Random Forest, Gradient Boosting, Neural Network (1), dan SVM** menunjukkan performa yang sangat baik dengan AUC, akurasi, F1 score, precision, recall, dan MCC yang hampir sempurna (semua mencapai 1.000). Model-model ini mampu mengklasifikasikan hampir semua data dengan benar dan seimbang dalam mendeteksi kedua kelas, menjadikannya pilihan terbaik untuk tugas klasifikasi ini. Oleh karena itu, model-model seperti **Gradient Boosting** dan **SVM** lebih disarankan, sementara **Logistic Regression** perlu ditingkatkan atau diganti dengan model yang lebih kuat..

Scatter Plot

