Table 1: Evaluation metrics and performance comparison

Dataset	Methods	OA	Precision	Recall	F_measure	G_mean	Specificity	Sensitivity	ROC AUC	Outcome Frequency	Imbalanced ratio
Pima Indian Diabetes	Decision Tree	0.71	**0.61**	0.54	0.57	0.66	**0.80**	0.54	0.67	Maj: 500 Min:268	1.9
	SMOTE	0.67	0.55	0.54	0.54	0.63	0.75	0.54	0.64		
	ADASYN	0.68	0.56	0.58	0.57	0.66	0.74	0.58	0.66		
	SMOTEBoost	0.66	0.52	**0.86**	0.64	0.68	0.54	**0.86**	0.70		
	Dev	**0.73**	0.60	0.78	**0.68**	**0.74**	0.71	0.78	**0.74**		
Abalone	Decision Tree	0.93	0.46	**0.46**	**0.46**	**0.66**	0.96	**0.46**	**0.71**	Maj:689 Min:42	16.4
	SMOTE	0.88	0.24	0.38	0.29	0.59	0.92	0.38	0.65		
	ADASYN	0.88	0.24	0.42	0.31	0.62	0.91	0.42	0.66		
	SMOTEBoost	0.84	0.19	**0.46**	0.27	0.63	0.87	**0.46**	0.66		
	Dev	**0.94**	**0.55**	0.34	0.42	0.58	**0.98**	0.34	0.66		
Vowel Recognition	Decision Tree	0.97	**0.90**	0.79	0.84	0.88	**0.99**	0.79	0.89	Maj:900 Min:90	10.0
	SMOTE	0.96	0.85	0.74	0.80	0.86	0.99	0.74	0.87		
	ADASYN	0.97	0.88	0.79	0.83	0.88	0.99	0.79	0.89		
	SMOTEBoost	**0.98**	0.83	0.96	0.89	0.97	0.98	0.96	0.97		
	Dev	**0.98**	0.87	**0.98**	**0.93**	**0.98**	**0.99**	**0.98**	**0.98**		
Mammography	Decision Tree	**0.98**	0.62	0.64	0.63	0.79	**0.99**	0.64	0.81	Maj: 10923 Min: 260	42
	SMOTE	0.97	0.41	**0.78**	0.54	**0.87**	0.97	**0.78**	**0.88**		
	ADASYN	0.97	0.38	0.72	0.50	0.84	0.97	0.72	0.84		
	SMOTEBoost	**0.98**	0.54	0.76	0.63	0.86	0.98	0.76	0.87		
	Dev	**0.98**	**0.66**	0.67	**0.67**	0.82	**0.99**	0.67	0.83		
Ionosphere	Decision Tree	0.86	0.83	0.73	0.77	0.82	0.92	0.73	0.83	Maj: 225 Min 126	1.8
	SMOTE	0.85	0.75	0.81	0.78	0.84	0.86	0.81	0.84		
	ADASYN	0.88	0.84	0.80	0.82	0.86	0.92	0.80	0.86		
	SMOTEBoost	**0.91**	0.89	**0.85**	**0.87**	**0.90**	0.95	**0.85**	**0.90**		
	Dev	**0.91**	**0.92**	0.79	0.85	0.87	**0.97**	0.79	0.88		
Vehicle	Decision Tree	0.94	**0.85**	0.88	0.87	0.92	**0.95**	0.88	0.92	Maj: 647 Min:199	3.3
	SMOTE	0.90	0.75	0.88	0.89	0.89	0.91	0.88	0.89		
	ADASYN	0.92	0.81	0.87	0.84	0.90	0.93	0.87	0.90		
	SMOTEBoost	**0.95**	0.84	**0.97**	**0.90**	**0.96**	0.94	**0.97**	**0.96**		
	Dev	0.89	0.70	**0.97**	0.81	0.92	0.87	**0.97**	0.92		
Phoneme	Decision Tree	**0.86**	**0.75**	0.74	0.75	0.82	**0.90**	0.74	0.82	Maj: 3818 Min:1580	2.4
	SMOTE	**0.86**	0.74	0.78	**0.76**	**0.83**	0.89	0.78	**0.83**		
	ADASYN	0.83	0.68	0.78	0.73	0.82	0.85	0.78	0.82		
	SMOTEBoost	0.77	0.57	0.86	0.69	0.80	0.74	0.86	0.80		
	Dev	0.52	0.38	**0.99**	0.54	0.57	0.34	**0.99**	0.66		
Haberman	Decision Tree	**0.67**	0.38	0.25	0.30	0.46	**0.83**	0.25	0.54	Maj: 225 Min:81	2.8
	SMOTE	0.65	**0.40**	0.39	0.39	**0.64**	0.76	0.39	0.57		
	ADASYN	0.60	0.37	0.52	0.43	0.58	0.63	0.52	0.58		
	SMOTEBoost	0.48	0.34	**0.84**	**0.48**	0.53	0.34	**0.84**	**0.59**		
	Dev	0.54	0.35	0.70	0.47	0.57	0.48	0.70	**0.59**		
Wisconsin	Decision Tree	0.95	0.93	0.93	0.93	0.95	0.96	0.93	0.95	Maj: 357 Min: 212	1.7
	SMOTE	0.92	0.89	0.90	0.89	0.91	0.93	0.90	0.91		
	ADASYN	0.95	0.93	0.94	0.94	0.95	0.96	0.94	0.95		
	SMOTEBoost	**0.98**	**0.99**	**0.95**	**0.97**	**0.97**	**0.99**	**0.95**	**0.97**		
	Dev	0.97	0.97	**0.95**	0.96	0.96	0.98	**0.95**	0.96		
Blood Transfusion	Decision Tree	**0.72**	**0.39**	0.28	0.32	0.49	**0.86**	0.28	0.57	Maj: 570 Min: 178	3.2
	SMOTE	0.71	**0.39**	0.39	0.39	0.56	0.81	0.39	0.60		
	ADASYN	0.70	0.38	0.42	0.40	0.57	0.78	0.42	0.60		
	SMOTEBoost	0.44	0.29	**0.93**	**0.45**	0.52	0.29	**0.93**	0.61		
	Dev	0.68	0.38	0.52	0.44	**0.61**	0.73	0.52	**0.62**		
PC1	Decision Tree	0.90	0.25	0.27	0.26	0.50	0.94	0.27	0.61	Maj: 1032 Min: 77	13.4
	SMOTE	0.87	0.22	0.38	0.27	0.58	0.90	0.38	0.64		
	ADASYN	0.87	0.26	**0.51**	**0.35**	**0.68**	0.90	**0.51**	**0.71**		
	SMOTEBoost	0.82	0.16	0.41	0.23	0.59	0.85	0.41	0.63		
	Dev	**0.91**	**0.34**	0.30	0.32	0.53	**0.96**	0.30	0.63		
Heart	Decision Tree	0.77	**0.68**	0.63	0.65	0.73	0.84	0.63	0.74	Maj: 188 Min: 106	6.9
	SMOTE	0.76	0.67	0.57	0.62	0.70	**0.85**	0.57	0.71		
	ADASYN	**0.79**	**0.68**	**0.75**	**0.71**	**0.78**	0.81	**0.75**	**0.78**		
	SMOTEBoost	0.70	0.55	**0.75**	0.63	0.71	0.68	**0.75**	0.71		
	Dev	0.74	0.60	0.74	0.66	0.74	0.75	0.74	0.74		
Segment	Decision Tree	**0.96**	**0.88**	0.88	**0.88**	**0.93**	**0.98**	0.88	**0.93**	Maj: 1980 Min: 330	6.0
	SMOTE	**0.96**	0.87	0.85	0.86	0.91	**0.98**	0.85	0.91		
	ADASYN	**0.96**	**0.88**	0.87	0.87	0.92	**0.98**	0.87	0.92		
	SMOTEBoost	0.95	0.80	0.87	0.83	0.92	0.96	0.87	0.92		
	Dev	0.72	0.34	**0.97**	0.51	0.81	0.68	**0.97**	0.82		
Yeast	Decision Tree	0.83	0.46	0.59	0.51	0.72	**0.87**	0.59	0.73	Maj: 1240 Min: 244	5.1
	SMOTE	0.81	0.41	0.60	0.49	0.71	0.85	0.60	0.72		
	ADASYN	0.82	0.43	0.66	0.52	0.75	0.84	0.66	0.75		
	SMOTEBoost	0.70	0.32	**0.82**	0.46	0.75	0.68	**0.82**	0.75		
	Dev	**0.84**	**0.50**	0.73	**0.59**	**0.79**	**0.87**	0.73	**0.80**		
Oil	Decision Tree	0.93	0.35	0.48	0.41	0.68	0.96	0.48	0.72	Maj: 896 Min: 41	21.9
	SMOTE	0.91	0.26	0.48	0.33	0.67	0.93	0.48	0.70		
	ADASYN	0.89	0.22	**0.52**	0.31	0.69	0.91	**0.52**	0.71		
	SMOTEBoost	0.94	0.41	**0.52**	**0.46**	**0.71**	0.96	**0.52**	**0.74**		
	Dev	**0.95**	**0.47**	0.28	0.35	0.52	**0.98**	0.28	0.63		
Adult	Decision Tree	0.75	0.48	0.47	0.48	0.63	0.84	0.47	0.66	Maj: 37155 Min: 11687	3.2
	SMOTE	0.70	0.41	0.56	0.48	0.65	0.75	0.56	0.65		
	ADASYN	0.71	0.42	0.57	0.48	0.65	0.75	0.57	0.66		
	SMOTEBoost	**0.81**	**0.62**	0.55	**0.58**	0.70	**0.90**	0.55	**0.72**		
	Dev	0.75	0.48	**0.67**	0.56	**0.72**	0.77	**0.67**	**0.72**		
Satimage	Decision Tree	**0.91**	**0.53**	0.51	0.52	0.70	**0.95**	0.51	0.73	Maj: 5805 Min: 625	9.3
	SMOTE	0.90	0.51	0.63	0.56	0.77	0.93	0.63	0.78		
	ADASYN	0.89	0.45	0.60	0.52	0.75	0.92	0.60	0.76		
	SMOTEBoost	0.90	0.49	0.72	**0.58**	0.81	0.92	0.72	**0.82**		
	Dev	0.88	0.42	**0.75**	0.54	**0.82**	0.89	**0.75**	**0.82**		
Forest cover	Decision Tree	0.97	**0.81**	0.82	**0.82**	0.90	**0.99**	0.82	0.90	Maj: 35754 Min: 2747	13.0
	SMOTE	**0.97**	0.78	0.85	0.81	0.91	0.98	0.85	**0.92**		
	ADASYN	**0.97**	0.79	0.86	**0.82**	**0.92**	0.98	0.86	**0.92**		
	SMOTEBoost	0.96	0.73	0.72	0.72	0.84	0.98	0.72	0.85		
	Dev	0.91	0.43	**0.88**	0.58	0.90	0.91	**0.88**	0.90		