

Table 1. Results of Machine Learning Algorithms After Sequential Feature Selection

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
GLM	No Feature Selection	74	43	87
	IG+RFE	74	35	90
	IG+GA	72	32	89
	IG+SA	73	32	90
	IG+BORUTA	72	30	90
	GR+RFE	74	35	90
	GR+GA	72	32	89
	GR+SA	73	32	90
	GR+BORUTA	72	30	90
	CFS+RFE	70	27	89
	CFS +GA	70	27	89
	CFS +SA	70	27	89
	CFS+BORUTA	70	27	89
	KI-KARE+RFE	74	35	90
	KI-KARE +GA	72	32	89
	KI-KARE +SA	73	32	90
	KI-KARE +BORUTA	72	30	90
	RELIEF+RFE	73	35	89
	RELIEF +GA	72	32	89
	RELIEF +SA	70	20	91
	RELIEF +BORUTA	75	37	91
	SU+RFE	70	38	88
	SU+GA	74	44	90
	SU+SA	73	39	91
	SU+BORUTA	72	30	90
KNN	No Feature Selection	62	17	81
	IG+RFE	62	17	81
	IG+GA	62	17	81
	IG+SA	66	10	89
	IG+BORUTA	62	17	81
	GR+RFE	62	17	81
	GR+GA	62	17	81
	GR+SA	66	10	89
	GR+BORUTA	62	17	81
	CFS+RFE	70	27	89
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	62	17	81
	KI-KARE +GA	62	17	81
	KI-KARE +SA	66	10	89
	KI-KARE +BORUTA	62	17	81
	RELIEF+RFE	66	12	89
	RELIEF +GA	62	17	81
	RELIEF +SA	67	30	83
	RELIEF +BORUTA	63	18	81
	SU+RFE	65	15	92
	SU+GA	66	15	93
	SU+SA	64	11	93
	SU+BORUTA	62	17	81
NB	No Feature Selection	69	62	72
	IG+RFE	73	50	82

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	IG+GA	68	47	77
	IG+SA	71	40	84
	IG+BORUTA	70	53	76
	GR+RFE	73	50	82
	GR+GA	68	47	77
	GR+SA	71	40	84
	GR+BORUTA	70	53	76
	CFS+RFE	69	28	86
	CFS +GA	69	28	86
	CFS +SA	69	28	86
	CFS+BORUTA	69	28	86
	KI-KARE+RFE	73	50	82
	KI-KARE +GA	68	47	77
	KI-KARE +SA	71	40	84
	KI-KARE +BORUTA	70	53	76
	RELIEF+RFE	67	53	72
	RELIEF +GA	65	50	71
	RELIEF +SA	65	47	73
	RELIEF +BORUTA	68	53	74
	SU+RFE	72	54	82
	SU+GA	75	61	83
	SU+SA	71	51	81
	SU+BORUTA	70	53	76
SVMLINEAR	No Feature Selection	73	42	86
	IG+RFE	75	35	91
	IG+GA	73	33	90
	IG+SA	73	25	94
	IG+BORUTA	73	33	90
	GR+RFE	75	35	91
	GR+GA	73	33	90
	GR+SA	73	25	94
	GR+BORUTA	73	33	90
	CFS+RFE	69	10	95
	CFS +GA	69	10	95
	CFS +SA	69	10	95
	CFS+BORUTA	69	10	95
	KI-KARE+RFE	75	35	91
	KI-KARE +GA	73	33	90
	KI-KARE +SA	73	25	94
	KI-KARE +BORUTA	73	33	90
	RELIEF+RFE	72	35	88
	RELIEF +GA	72	30	89
	RELIEF +SA	70	0	100
	RELIEF +BORUTA	75	32	93
	SU+RFE	72	31	94
	SU+GA	73	41	90
	SU+SA	65	0	100
	SU+BORUTA	73	33	90
SVMPOLY	No Feature Selection	72	35	88
	IG+RFE	74	37	90
	IG+GA	74	33	91
	IG+SA	75	37	91
	IG+BORUTA	73	35	90
	GR+RFE	74	37	90
	GR+GA	74	33	91
	GR+SA	75	37	91

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	GR+BORUTA	73	35	89
	CFS+RFE	68	0	96
	CFS +GA	68	0	96
	CFS +SA	68	0	96
	CFS+BORUTA	68	0	96
	KI-KARE+RFE	74	37	90
	KI-KARE +GA	74	33	91
	KI-KARE +SA	75	37	91
	KI-KARE +BORUTA	73	35	89
	RELIEF+RFE	72	33	88
	RELIEF +GA	70	28	88
	RELIEF +SA	66	15	88
	RELIEF +BORUTA	74	30	93
	SU+RFE	71	41	87
	SU+GA	74	45	90
	SU+SA	70	31	91
	SU+BORUTA	73	35	89
SVMRADIAL	No Feature Selection	73	33	89
	IG+RFE	74	33	91
	IG+GA	73	28	92
	IG+SA	75	32	93
	IG+BORUTA	75	33	92
	GR+RFE	74	33	91
	GR+GA	73	28	92
	GR+SA	75	32	93
	GR+BORUTA	75	33	92
	CFS+RFE	69	28	86
	CFS +GA	69	28	86
	CFS +SA	69	28	86
	CFS+BORUTA	69	28	86
	KI-KARE+RFE	74	33	91
	KI-KARE +GA	73	28	92
	KI-KARE +SA	75	32	93
	KI-KARE +BORUTA	75	33	92
	RELIEF+RFE	73	25	93
	RELIEF +GA	72	25	92
	RELIEF +SA	65	20	84
	RELIEF +BORUTA	73	30	91
	SU+RFE	72	38	90
	SU+GA	73	39	91
	SU+SA	72	32	93
	SU+BORUTA	75	33	92
LDA	No Feature Selection	73	43	86
	IG+RFE	73	33	89
	IG+GA	72	32	89
	IG+SA	73	37	88
	IG+BORUTA	73	35	89
	GR+RFE	73	33	89
	GR+GA	72	32	89
	GR+SA	73	37	88
	GR+BORUTA	73	35	89
	CFS+RFE	70	27	89
	CFS +GA	70	27	89
	CFS +SA	70	27	89
	CFS+BORUTA	70	27	89
	KI-KARE+RFE	73	33	89

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	KI-KARE +GA	72	32	89
	KI-KARE +SA	73	37	88
	KI-KARE +BORUTA	73	35	89
	RELIEF+RFE	72	35	88
	RELIEF +GA	72	32	89
	RELIEF +SA	69	20	89
	RELIEF +BORUTA	75	37	91
	SU+RFE	71	41	87
	SU+GA	73	45	88
	SU+SA	72	44	88
	SU+BORUTA	73	35	89
MLP	No Feature Selection	70	0	100
	IG+RFE	70	0	100
	IG+GA	70	0	100
	IG+SA	70	0	100
	IG+BORUTA	70	0	100
	GR+RFE	70	0	100
	GR+GA	70	0	100
	GR+SA	70	0	100
	GR+BORUTA	70	0	100
	CFS+RFE	70	27	89
	CFS +GA	70	27	89
	CFS +SA	70	27	89
	CFS+BORUTA	70	27	89
	KI-KARE+RFE	70	0	100
	KI-KARE +GA	70	0	100
	KI-KARE +SA	70	0	100
	KI-KARE +BORUTA	70	0	100
	RELIEF+RFE	70	0	100
	RELIEF +GA	70	0	100
	RELIEF +SA	70	0	100
	RELIEF +BORUTA	70	0	100
	SU+RFE	65	0	100
	SU+GA	65	0	100
	SU+SA	65	0	100
	SU+BORUTA	70	0	100
EVTREE	No Feature Selection	72	30	90
	IG+RFE	68	43	78
	IG+GA	70	38	84
	IG+SA	70	25	89
	IG+BORUTA	71	42	84
	GR+RFE	68	43	78
	GR+GA	70	38	84
	GR+SA	70	25	89
	GR+BORUTA	71	42	84
	CFS+RFE	67	10	92
	CFS +GA	67	10	92
	CFS +SA	67	10	92
	CFS+BORUTA	67	10	92
	KI-KARE+RFE	68	43	78
	KI-KARE +GA	70	38	84
	KI-KARE +SA	70	25	89
	KI-KARE +BORUTA	71	42	84
	RELIEF+RFE	69	13	92
	RELIEF +GA	69	32	84
	RELIEF +SA	66	18	86

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	RELIEF +BORUTA	73	35	89
	SU+RFE	71	46	84
	SU+GA	73	39	91
	SU+SA	64	21	88
	SU+BORUTA	71	42	83
RPART	No Feature Selection	70	42	81
	IG+RFE	70	42	81
	IG+GA	69	43	79
	IG+SA	70	25	89
	IG+BORUTA	70	42	81
	GR+RFE	70	42	81
	GR+GA	69	43	79
	GR+SA	70	25	89
	GR+BORUTA	70	42	81
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	70	42	81
	KI-KARE +GA	69	43	79
	KI-KARE +SA	70	25	89
	KI-KARE +BORUTA	70	42	81
	RELIEF+RFE	70	30	86
	RELIEF +GA	70	30	86
	RELIEF +SA	66	18	86
	RELIEF +BORUTA	71	23	91
	SU+RFE	71	51	82
	SU+GA	69	27	91
	SU+SA	68	42	81
	SU+BORUTA	70	42	81
C5.0	No Feature Selection	72	47	83
	IG+RFE	73	43	86
	IG+GA	74	42	88
	IG+SA	71	47	81
	IG+BORUTA	72	27	91
	GR+RFE	73	43	86
	GR+GA	74	42	88
	GR+SA	71	47	81
	GR+BORUTA	72	27	91
	CFS+RFE	69	10	95
	CFS +GA	69	10	95
	CFS +SA	69	10	95
	CFS+BORUTA	69	10	95
	KI-KARE+RFE	73	43	86
	KI-KARE +GA	74	42	88
	KI-KARE +SA	71	47	81
	KI-KARE +BORUTA	72	27	91
	RELIEF+RFE	69	40	81
	RELIEF +GA	69	32	85
	RELIEF +SA	66	18	86
	RELIEF +BORUTA	73	35	89
	SU+RFE	69	56	76
	SU+GA	73	45	88
	SU+SA	70	44	84
	SU+BORUTA	72	27	91
J48	No Feature Selection	73	42	86

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	IG+RFE	73	37	88
	IG+GA	70	22	90
	IG+SA	70	30	87
	IG+BORUTA	71	33	86
	GR+RFE	73	37	88
	GR+GA	70	22	90
	GR+SA	70	30	87
	GR+BORUTA	71	33	86
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	73	37	88
	KI-KARE +GA	70	22	90
	KI-KARE +SA	70	30	87
	KI-KARE +BORUTA	71	33	86
	RELIEF+RFE	65	27	81
	RELIEF +GA	69	28	86
	RELIEF +SA	65	20	85
	RELIEF +BORUTA	72	27	91
	SU+RFE	70	46	83
	SU+GA	68	42	81
	SU+SA	69	42	84
	SU+BORUTA	71	33	86
EARTH	No Feature Selection	73	37	88
	IG+RFE	73	33	90
	IG+GA	72	37	86
	IG+SA	72	38	86
	IG+BORUTA	74	38	89
	GR+RFE	73	33	90
	GR+GA	72	37	86
	GR+SA	72	38	86
	GR+BORUTA	74	38	89
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	73	33	90
	KI-KARE +GA	73	33	90
	KI-KARE +SA	72	38	86
	KI-KARE +BORUTA	74	38	89
	RELIEF+RFE	70	38	84
	RELIEF +GA	71	38	84
	RELIEF +SA	70	17	92
	RELIEF +BORUTA	72	37	86
	SU+RFE	76	49	91
	SU+GA	75	46	91
	SU+SA	70	44	84
	SU+BORUTA	74	38	89
RF	No Feature Selection	75	30	94
	IG+RFE	74	38	89
	IG+GA	73	40	87
	IG+SA	73	40	86
	IG+BORUTA	71	45	82
	GR+RFE	74	38	89
	GR+GA	73	40	87

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	GR+SA	73	40	86
	GR+BORUTA	71	45	82
	CFS+RFE	69	28	86
	CFS +GA	69	28	86
	CFS +SA	69	28	86
	CFS+BORUTA	69	28	86
	KI-KARE+RFE	74	38	89
	KI-KARE +GA	73	40	86
	KI-KARE +SA	73	40	86
	KI-KARE +BORUTA	71	45	82
	RELIEF+RFE	70	20	91
	RELIEF +GA	70	27	88
	RELIEF +SA	67	25	85
	RELIEF +BORUTA	75	35	92
	SU+RFE	77	54	89
	SU+GA	74	38	93
	SU+SA	70	39	87
	SU+BORUTA	71	45	82
GBM	No Feature Selection	72	42	84
	IG+RFE	73	38	87
	IG+GA	72	37	86
	IG+SA	73	28	91
	IG+BORUTA	74	40	89
	GR+RFE	73	38	87
	GR+GA	72	37	86
	GR+SA	73	28	91
	GR+BORUTA	74	40	89
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	73	38	87
	KI-KARE +GA	72	37	86
	KI-KARE +SA	73	28	91
	KI-KARE +BORUTA	74	40	89
	RELIEF+RFE	70	28	88
	RELIEF +GA	70	25	89
	RELIEF +SA	68	25	86
	RELIEF +BORUTA	75	35	91
	SU+RFE	70	41	86
	SU+GA	73	41	90
	SU+SA	70	39	86
	SU+BORUTA	74	40	89
XGBTREE	No Feature Selection	72	40	86
	IG+RFE	74	40	89
	IG+GA	74	42	87
	IG+SA	71	37	86
	IG+BORUTA	76	45	89
	GR+RFE	74	40	89
	GR+GA	74	42	87
	GR+SA	71	37	86
	GR+BORUTA	76	45	89
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	KI-KARE+RFE	74	40	89
	KI-KARE +GA	74	42	87
	KI-KARE +SA	71	37	86
	KI-KARE +BORUTA	76	45	89
	RELIEF+RFE	72	33	88
	RELIEF +GA	72	35	87
	RELIEF +SA	67	27	84
	RELIEF +BORUTA	75	35	91
	SU+RFE	76	51	89
	SU+GA	76	50	90
	SU+SA	69	45	82
	SU+BORUTA	76	45	89
TREEB AG	No Feature Selection	72	40	85
	IG+RFE	73	48	84
	IG+GA	75	48	86
	IG+SA	70	42	82
	IG+BORUTA	71	47	81
	GR+RFE	73	48	84
	GR+GA	75	48	86
	GR+SA	70	42	82
	GR+BORUTA	71	47	81
	CFS+RFE	69	28	86
	CFS +GA	69	28	86
	CFS +SA	69	28	86
	CFS+BORUTA	69	28	86
	KI-KARE+RFE	73	48	84
	KI-KARE +GA	75	48	86
	KI-KARE +SA	70	42	82
	KI-KARE +BORUTA	71	47	81
	RELIEF+RFE	72	40	85
	RELIEF +GA	69	38	82
	RELIEF +SA	65	25	81
	RELIEF +BORUTA	75	40	89
	SU+RFE	74	56	83
	SU+GA	74	48	88
	SU+SA	70	41	85
	SU+BORUTA	71	47	81
ADABOOST	No Feature Selection	74	32	92
	IG+RFE	75	35	91
	IG+GA	74	38	89
	IG+SA	73	33	89
	IG+BORUTA	74	40	89
	GR+RFE	75	35	91
	GR+GA	74	38	89
	GR+SA	73	33	89
	GR+BORUTA	74	40	89
	CFS+RFE	67	10	94
	CFS +GA	67	10	94
	CFS +SA	67	10	94
	CFS+BORUTA	67	10	94
	KI-KARE+RFE	75	35	91
	KI-KARE +GA	74	38	89
	KI-KARE +SA	73	33	89
	KI-KARE +BORUTA	74	40	89
	RELIEF+RFE	72	27	91
	RELIEF +GA	70	22	91

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	RELIEF +SA	65	10	92
	RELIEF +BORUTA	74	38	89
	SU+RFE	72	46	86
	SU+GA	70	35	88
	SU+SA	70	35	88
	SU+BORUTA	74	40	89
GLMBOOST	No Feature Selection	73	32	91
	IG+RFE	73	30	91
	IG+GA	73	32	90
	IG+SA	74	30	92
	IG+BORUTA	73	28	91
	GR+RFE	73	30	91
	GR+GA	73	32	91
	GR+SA	74	30	92
	GR+BORUTA	73	28	91
	CFS+RFE	70	23	89
	CFS +GA	70	23	89
	CFS +SA	70	23	89
	CFS+BORUTA	70	23	89
	KI-KARE+RFE	73	30	91
	KI-KARE +GA	73	32	90
	KI-KARE +SA	73	33	90
	KI-KARE +BORUTA	73	28	91
	RELIEF+RFE	72	28	90
	RELIEF +GA	72	28	90
	RELIEF +SA	70	20	91
	RELIEF +BORUTA	73	30	91
	SU+RFE	70	37	88
	SU+GA	72	38	90
	SU+SA	74	38	93
	SU+BORUTA	73	28	91
LOGITBOOST	No Feature Selection	70	40	83
	IG+RFE	70	57	76
	IG+GA	70	33	86
	IG+SA	69	60	73
	IG+BORUTA	70	57	76
	GR+RFE	70	57	76
	GR+GA	70	33	86
	GR+SA	69	60	73
	GR+BORUTA	70	57	76
	CFS+RFE	69	10	95
	CFS +GA	69	10	95
	CFS +SA	69	10	95
	CFS+BORUTA	69	10	95
	KI-KARE+RFE	70	57	76
	KI-KARE +GA	70	33	86
	KI-KARE +SA	69	60	73
	KI-KARE +BORUTA	70	57	76
	RELIEF+RFE	70	40	83
	RELIEF +GA	70	40	83
	RELIEF +SA	67	30	82
	RELIEF +BORUTA	66	19	86
	SU+RFE	64	32	81
	SU+GA	71	48	84
	SU+SA	72	49	84
	SU+BORUTA	70	57	76

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
ROTATION FOREST	No Feature Selection	73	42	86
	IG+RFE	73	38	87
	IG+GA	70	35	85
	IG+SA	73	42	86
	IG+BORUTA	72	40	86
	GR+RFE	73	38	87
	GR+GA	70	35	85
	GR+SA	73	42	86
	GR+BORUTA	72	40	86
	CFS+RFE	70	28	88
	CFS +GA	70	28	88
	CFS +SA	70	28	88
	CFS+BORUTA	70	28	88
	KI-KARE+RFE	73	38	87
	KI-KARE +GA	70	35	85
	KI-KARE +SA	73	42	86
	KI-KARE +BORUTA	72	40	86
	RELIEF+RFE	74	33	91
	RELIEF +GA	72	32	89
	RELIEF +SA	67	10	91
	RELIEF +BORUTA	75	38	91
	SU+RFE	72	48	84
	SU+GA	67	32	86
	SU+SA	69	44	82
	SU+BORUTA	72	40	86

Table 2. Results of Machine Learning Algorithms After Sequential Feature Selection_undersampling

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
GLM	No Feature Selection	74	77	72
	IG+RFE	68	60	77
	IG+GA	73	80	67
	IG+SA	68	75	62
	IG+BORUTA	75	67	83
	GR+RFE	69	70	68
	GR+GA	56	52	60
	GR+SA	67	68	65
	GR+BORUTA	75	77	73
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	75	68	82
	KI-KARE +GA	69	65	73
	KI-KARE +SA	67	65	68
	KI-KARE +BORUTA	71	73	68
	RELIEF+RFE	66	70	62
	RELIEF +GA	67	68	65
	RELIEF +SA	65	67	63
	RELIEF +BORUTA	69	70	68
	SU+RFE	77	83	73
	SU+GA	68	75	64

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	SU+SA	66	68	64
	SU+BORUTA	70	74	67
KNN	No Feature Selection	57	63	50
	IG+RFE	58	63	53
	IG+GA	58	63	53
	IG+SA	57	55	58
	IG+BORUTA	53	53	53
	GR+RFE	49	48	50
	GR+GA	51	48	53
	GR+SA	56	60	52
	GR+BORUTA	50	55	45
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	51	50	52
	KI-KARE +GA	53	48	58
	KI-KARE +SA	58	62	55
	KI-KARE +BORUTA	55	52	58
	RELIEF+RFE	56	60	52
	RELIEF +GA	65	68	62
	RELIEF +SA	58	62	53
	RELIEF +BORUTA	59	58	60
	SU+RFE	55	57	53
	SU+GA	66	79	58
	SU+SA	61	72	53
	SU+BORUTA	58	62	55
NB	No Feature Selection	73	82	65
	IG+RFE	68	55	80
	IG+GA	72	77	67
	IG+SA	67	63	70
	IG+BORUTA	73	67	78
	GR+RFE	67	62	72
	GR+GA	63	42	85
	GR+SA	69	70	68
	GR+BORUTA	75	73	77
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	78	72	83
	KI-KARE +GA	72	63	80
	KI-KARE +SA	69	75	63
	KI-KARE +BORUTA	69	75	63
	RELIEF+RFE	58	85	30
	RELIEF +GA	56	80	32
	RELIEF +SA	60	83	37
	RELIEF +BORUTA	70	62	78
	SU+RFE	80	77	82
	SU+GA	69	72	67
	SU+SA	71	62	77
	SU+BORUTA	68	70	67
SVMLI NEAR	No Feature Selection	74	77	72
	IG+RFE	67	53	80
	IG+GA	75	83	67
	IG+SA	69	82	57

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	IG+BORUTA	76	70	82
	GR+RFE	68	70	65
	GR+GA	56	50	62
	GR+SA	64	67	62
	GR+BORUTA	73	78	68
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	74	70	78
	KI-KARE +GA	69	68	70
	KI-KARE +SA	70	78	62
	KI-KARE +BORUTA	69	73	65
	RELIEF+RFE	63	70	55
	RELIEF +GA	63	67	58
	RELIEF +SA	62	68	55
	RELIEF +BORUTA	67	72	62
	SU+RFE	76	83	71
	SU+GA	73	77	70
	SU+SA	66	72	62
	SU+BORUTA	68	74	64
SVM POLY	No Feature Selection			
	IG+RFE	70	62	78
	IG+GA	73	83	62
	IG+SA	71	75	67
	IG+BORUTA	74	67	82
	GR+RFE	62	70	53
	GR+GA	64	48	80
	GR+SA	64	65	63
	GR+BORUTA	74	77	72
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	77	68	85
	KI-KARE +GA	70	72	68
	KI-KARE +SA	69	73	65
	KI-KARE +BORUTA	73	80	67
	RELIEF+RFE	63	72	55
	RELIEF +GA	64	70	58
	RELIEF +SA	62	68	55
	RELIEF +BORUTA	64	58	70
	SU+RFE	74	85	67
	SU+GA	72	77	68
	SU+SA	66	72	62
	SU+BORUTA	68	74	63
SVM RADIAL	No Feature Selection	78	78	77
	IG+RFE	71	62	80
	IG+GA	70	73	67
	IG+SA	68	80	55
	IG+BORUTA	74	70	78
	GR+RFE	68	67	68
	GR+GA	61	60	62
	GR+SA	68	68	68
	GR+BORUTA	70	77	63
	CFS+RFE	64	80	48

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	77	70	83
	KI-KARE +GA	72	75	68
	KI-KARE +SA	68	77	60
	KI-KARE +BORUTA	73	75	70
	RELIEF+RFE	67	67	67
	RELIEF +GA	62	63	60
	RELIEF +SA	66	63	68
	RELIEF +BORUTA	67	65	68
	SU+RFE	73	83	66
	SU+GA	73	77	70
	SU+SA	69	70	68
	SU+BORUTA	71	77	67
LDA	No Feature Selection	73	77	70
	IG+RFE	68	60	75
	IG+GA	73	80	65
	IG+SA	68	75	62
	IG+BORUTA	74	68	80
	GR+RFE	69	70	68
	GR+GA	57	52	62
	GR+SA	66	68	63
	GR+BORUTA	74	77	72
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	74	67	82
	KI-KARE +GA	67	65	68
	KI-KARE +SA	68	68	68
	KI-KARE +BORUTA	72	75	68
	RELIEF+RFE	65	70	60
	RELIEF +GA	67	68	65
	RELIEF +SA	65	67	63
	RELIEF +BORUTA	70	72	68
	SU+RFE	77	83	73
	SU+GA	70	72	68
	SU+SA	66	68	63
	SU+BORUTA	69	74	66
MLP	No Feature Selection	50	100	0
	IG+RFE	50	0	100
	IG+GA	50	0	100
	IG+SA	50	0	100
	IG+BORUTA	50	0	100
	GR+RFE	50	0	100
	GR+GA	50	0	100
	GR+SA	50	100	0
	GR+BORUTA	50	0	100
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	50	0	100
	KI-KARE +GA	50	0	100
	KI-KARE +SA	50	0	100

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	KI-KARE +BORUTA	50	0	100
	RELIEF+RFE	50	0	100
	RELIEF +GA	50	100	0
	RELIEF +SA	50	100	0
	RELIEF +BORUTA	50	0	100
	SU+RFE	39	100	0
	SU+GA	39	100	0
	SU+SA	61	0	100
	SU+BORUTA	39	100	0
EVTREE	No Feature Selection	71	75	67
	IG+RFE	70	65	75
	IG+GA	68	87	48
	IG+SA	69	90	48
	IG+BORUTA	68	73	63
	GR+RFE	64	80	48
	GR+GA	55	67	43
	GR+SA	62	68	55
	GR+BORUTA	69	78	60
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	73	73	72
	KI-KARE +GA	66	73	58
	KI-KARE +SA	71	75	67
	KI-KARE +BORUTA	67	73	60
	RELIEF+RFE	64	62	67
	RELIEF +GA	63	77	50
	RELIEF +SA	61	70	52
	RELIEF +BORUTA	66	75	57
	SU+RFE	66	83	55
	SU+GA	70	79	64
	SU+SA	60	77	49
	SU+BORUTA	68	77	63
RPART	No Feature Selection	69	68	70
	IG+RFE	68	58	77
	IG+GA	66	77	55
	IG+SA	72	77	67
	IG+BORUTA	73	78	67
	GR+RFE	64	80	48
	GR+GA	55	67	43
	GR+SA	63	43	82
	GR+BORUTA	68	77	60
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	67	62	72
	KI-KARE +GA	64	80	48
	KI-KARE +SA	70	72	68
	KI-KARE +BORUTA	65	80	50
	RELIEF+RFE	63	48	78
	RELIEF +GA	63	48	77
	RELIEF +SA	63	82	43
	RELIEF +BORUTA	67	80	53
	SU+RFE	66	83	55

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	SU+GA	70	79	64
	SU+SA	60	77	49
	SU+BORUTA	62	87	45
C5.0	No Feature Selection	73	80	67
	IG+RFE	66	58	73
	IG+GA	69	75	63
	IG+SA	71	88	53
	IG+BORUTA	74	65	83
	GR+RFE	60	65	55
	GR+GA	60	65	55
	GR+SA	64	55	73
	GR+BORUTA	66	57	75
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	73	67	78
	KI-KARE +GA	63	70	57
	KI-KARE +SA	68	65	72
	KI-KARE +BORUTA	69	73	65
	RELIEF+RFE	61	62	60
	RELIEF +GA	60	60	60
	RELIEF +SA	61	80	42
	RELIEF +BORUTA	68	72	63
	SU+RFE	68	70	66
	SU+GA	66	64	67
	SU+SA	65	70	62
	SU+BORUTA	63	72	58
J48	No Feature Selection	75	83	67
	IG+RFE	72	72	72
	IG+GA	70	75	65
	IG+SA	69	90	48
	IG+BORUTA	76	78	73
	GR+RFE	64	80	48
	GR+GA	57	62	52
	GR+SA	63	68	57
	GR+BORUTA	69	78	60
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	75	75	75
	KI-KARE +GA	59	63	55
	KI-KARE +SA	72	77	67
	KI-KARE +BORUTA	68	70	65
	RELIEF+RFE	63	58	67
	RELIEF +GA	63	73	52
	RELIEF +SA	63	75	50
	RELIEF +BORUTA	65	80	50
	SU+RFE	71	79	66
	SU+GA	70	79	64
	SU+SA	60	77	49
	SU+BORUTA	66	72	62
EARTH	No Feature Selection	73	77	68
	IG+RFE	63	63	63
	IG+GA	70	78	62

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	IG+SA	69	90	48
	IG+BORUTA	74	75	73
	GR+RFE	62	63	60
	GR+GA	59	55	57
	GR+SA	68	65	72
	GR+BORUTA	69	78	60
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	73	73	72
	KI-KARE +GA	64	80	48
	KI-KARE +SA	68	72	65
	KI-KARE +BORUTA	70	73	67
	RELIEF+RFE	59	62	57
	RELIEF +GA	66	63	68
	RELIEF +SA	62	65	58
	RELIEF +BORUTA	67	67	67
	SU+RFE	74	83	68
	SU+GA	73	77	71
	SU+SA	66	66	66
	SU+BORUTA	63	72	56
RF	No Feature Selection	78	80	77
	IG+RFE	68	62	75
	IG+GA	70	77	63
	IG+SA	68	70	65
	IG+BORUTA	74	68	80
	GR+RFE	67	68	65
	GR+GA	62	53	70
	GR+SA	63	70	57
	GR+BORUTA	71	72	70
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	74	70	78
	KI-KARE +GA	66	67	65
	KI-KARE +SA	66	70	62
	KI-KARE +BORUTA	68	77	60
	RELIEF+RFE	65	67	63
	RELIEF +GA	65	67	63
	RELIEF +SA	65	73	57
	RELIEF +BORUTA	60	62	58
	SU+RFE	72	83	64
	SU+GA	73	79	70
	SU+SA	61	70	55
	SU+BORUTA	69	74	66
GBM	No Feature Selection	74	82	67
	IG+RFE	73	67	78
	IG+GA	73	78	68
	IG+SA	69	73	65
	IG+BORUTA	76	73	78
	GR+RFE	64	63	65
	GR+GA	62	63	60
	GR+SA	64	65	63
	GR+BORUTA	73	73	73

ALGORITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	74	75	73
	KI-KARE +GA	69	68	70
	KI-KARE +SA	65	67	63
	KI-KARE +BORUTA	68	75	62
	RELIEF+RFE	57	55	58
	RELIEF +GA	64	57	72
	RELIEF +SA	59	67	52
	RELIEF +BORUTA	71	75	67
	SU+RFE	73	79	70
	SU+GA	71	77	67
	SU+SA	69	70	68
	SU+BORUTA	71	79	66
XGBTREE	No Feature Selection	76	77	75
	IG+RFE	75	70	80
	IG+GA	73	78	67
	IG+SA	72	77	67
	IG+BORUTA	74	73	75
	GR+RFE	66	70	62
	GR+GA	57	52	62
	GR+SA	68	67	68
	GR+BORUTA	70	72	68
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	73	75	70
	KI-KARE +GA	71	68	73
	KI-KARE +SA	65	68	62
	KI-KARE +BORUTA	73	82	65
	RELIEF+RFE	60	60	60
	RELIEF +GA	62	65	58
	RELIEF +SA	63	67	58
	RELIEF +BORUTA	72	78	65
	SU+RFE	70	77	66
	SU+GA	73	72	73
	SU+SA	68	66	70
	SU+BORUTA	71	77	67
TREEB AG	No Feature Selection	77	80	73
	IG+RFE	70	62	78
	IG+GA	72	80	63
	IG+SA	68	72	63
	IG+BORUTA	75	72	78
	GR+RFE	66	65	67
	GR+GA	60	55	65
	GR+SA	63	70	55
	GR+BORUTA	65	65	65
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	70	67	73
	KI-KARE +GA	69	68	70

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	KI-KARE +SA	68	68	67
	KI-KARE +BORUTA	74	80	68
	RELIEF+RFE	63	62	65
	RELIEF +GA	63	62	65
	RELIEF +SA	62	65	58
	RELIEF +BORUTA	67	73	60
	SU+RFE	72	81	66
	SU+GA	69	70	68
	SU+SA	62	72	55
	SU+BORUTA	66	72	62
ADABOOST	No Feature Selection	75	73	77
	IG+RFE	67	57	77
	IG+GA	70	77	63
	IG+SA	64	67	62
	IG+BORUTA	68	65	70
	GR+RFE	60	60	60
	GR+GA	51	48	53
	GR+SA	58	60	55
	GR+BORUTA	72	72	72
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	72	65	78
	KI-KARE +GA	61	60	62
	KI-KARE +SA	65	60	70
	KI-KARE +BORUTA	76	82	70
	RELIEF+RFE	58	57	58
	RELIEF +GA	66	63	68
	RELIEF +SA	69	70	68
	RELIEF +BORUTA	62	68	55
	SU+RFE	69	79	63
	SU+GA	73	74	71
	SU+SA	59	53	63
	SU+BORUTA	68	68	67
GLMBOOST	No Feature Selection	73	77	68
	IG+RFE	69	60	73
	IG+GA	73	80	67
	IG+SA	69	77	62
	IG+BORUTA	76	68	83
	GR+RFE	68	68	68
	GR+GA	57	52	62
	GR+SA	68	68	67
	GR+BORUTA	75	77	73
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	74	68	80
	KI-KARE +GA	68	67	70
	KI-KARE +SA	67	65	68
	KI-KARE +BORUTA	70	73	67
	RELIEF+RFE	67	70	63
	RELIEF +GA	64	65	63
	RELIEF +SA	63	67	60
	RELIEF +BORUTA	70	72	68

ALGOR ITHM	ATTRIBUTE SELECTION METHOD	Acc (%)	Sen (%)	Spe (%)
	SU+RFE	78	83	74
	SU+GA	70	72	68
	SU+SA	69	68	70
	SU+BORUTA	71	74	68
LOGITBOOST	No Feature Selection	67	58	75
	IG+RFE	64	67	62
	IG+GA	73	77	70
	IG+SA	65	67	63
	IG+BORUTA	73	73	72
	GR+RFE	64	65	63
	GR+GA	54	62	47
	GR+SA	58	65	52
	GR+BORUTA	61	72	50
	CFS+RFE	64	80	48
	CFS +GA	69	80	58
	CFS +SA	69	80	58
	CFS+BORUTA	69	80	58
	KI-KARE+RFE	73	70	77
	KI-KARE +GA	65	63	67
	KI-KARE +SA	71	73	68
	KI-KARE +BORUTA	65	63	67
	RELIEF+RFE	65	65	65
	RELIEF +GA	57	83	30
	RELIEF +SA	58	70	47
	RELIEF +BORUTA	63	52	75
	SU+RFE	63	74	56
	SU+GA	72	74	70
	SU+SA	58	70	49
	SU+BORUTA	66	72	62
ROTATION FOREST	No Feature Selection	73	77	70
	IG+RFE	70	58	82
	IG+GA	73	78	68
	IG+SA	74	78	70
	IG+BORUTA	77	80	73
	GR+RFE	65	72	58
	GR+GA	60	60	60
	GR+SA	63	67	58
	GR+BORUTA	71	75	67
	CFS+RFE			
	CFS +GA			
	CFS +SA			
	CFS+BORUTA			
	KI-KARE+RFE	72	68	75
	KI-KARE +GA	67	68	65
	KI-KARE +SA	67	70	63
	KI-KARE +BORUTA	69	75	63
	RELIEF+RFE	63	60	65
	RELIEF +GA	64	72	57
	RELIEF +SA	63	68	57
	RELIEF +BORUTA	69	68	70
	SU+RFE	73	83	66
	SU+GA	68	70	67
	SU+SA	63	74	56
	SU+BORUTA	70	81	63

Table 3. Results of Machine Learning Algorithms After Sequential Feature Selection_ oversampling

ALGORİTMA	ÖZNEİELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
GLM	No Feature Selection	73	69	76
	IG+RFE	75	72	78
	IG+GA	72	69	74
	IG+SA	71	68	74
	IG+BORUTA	71	72	70
	GR+RFE	71	72	70
	GR+GA	71	72	70
	GR+SA	67	61	74
	GR+BORUTA	72	73	71
	CFS+RFE	70	62	78
	CFS +GA	69	64	74
	CFS +SA	69	62	75
	CFS+BORUTA	69	62	75
	Kİ-KARE+RFE	74	75	73
	Kİ-KARE +GA	73	72	74
	Kİ-KARE +SA	66	62	70
	Kİ-KARE +BORUTA	73	71	74
	RELİEF+RFE	72	72	71
	RELİEF +GA	72	72	71
	RELİEF +SA	61	69	54
	RELİEF +BORUTA	71	76	67
	SU+RFE	74	70	78
	SU+GA	74	70	78
	SU+SA	66	69	63
	SU+BORUTA	71	66	75
KNN	No Feature Selection	66	54	77
	IG+RFE	65	49	80
	IG+GA	64	53	75
	IG+SA	71	65	78
	IG+BORUTA	60	51	68
	GR+RFE	64	57	71
	GR+GA	64	57	71
	GR+SA	64	57	71
	GR+BORUTA	65	54	77
	CFS+RFE	68	58	79
	CFS +GA	69	64	74
	CFS +SA	64	54	74
	CFS+BORUTA	64	54	74
	Kİ-KARE+RFE	63	49	77
	Kİ-KARE +GA	64	57	71
	Kİ-KARE +SA	61	46	77
	Kİ-KARE +BORUTA	68	57	78
	RELİEF+RFE	63	54	71
	RELİEF +GA	61	54	69
	RELİEF +SA	64	57	71
	RELİEF +BORUTA	59	52	66
	SU+RFE	67	58	75
	SU+GA	67	58	75
	SU+SA	62	55	69
	SU+BORUTA	66	55	76
NB	No Feature Selection	75	62	87
	IG+RFE	68	59	78

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	IG+GA	72	64	79
	IG+SA	72	66	78
	IG+BORUTA	73	69	78
	GR+RFE	75	79	70
	GR+GA	73	76	70
	GR+SA	69	74	63
	GR+BORUTA	73	74	72
	CFS+RFE	67	48	86
	CFS +GA	70	62	77
	CFS +SA	68	61	75
	CFS+BORUTA	68	61	75
	Kİ-KARE+RFE	73	76	69
	Kİ-KARE +GA	73	77	68
	Kİ-KARE +SA	64	69	59
	Kİ-KARE +BORUTA	74	74	73
	RELİEF+RFE	73	78	69
	RELİEF +GA	68	76	60
	RELİEF +SA	64	80	48
	RELİEF +BORUTA	70	79	61
	SU+RFE	69	72	66
	SU+GA	69	72	66
	SU+SA	62	33	87
	SU+BORUTA	73	69	76
SVMLINEAR	No Feature Selection	73	69	78
	IG+RFE	73	70	76
	IG+GA	72	65	79
	IG+SA	69	59	78
	IG+BORUTA	72	72	72
	GR+RFE	71	65	76
	GR+GA	70	66	75
	GR+SA	67	59	76
	GR+BORUTA	71	69	74
	CFS+RFE	68	54	81
	CFS +GA	68	54	81
	CFS +SA	67	54	80
	CFS+BORUTA	67	54	80
	Kİ-KARE+RFE	73	71	75
	Kİ-KARE +GA	71	66	76
	Kİ-KARE +SA	65	64	66
	Kİ-KARE +BORUTA	70	66	74
	RELİEF+RFE	73	68	78
	RELİEF +GA	70	69	71
	RELİEF +SA	65	75	55
	RELİEF +BORUTA	71	73	69
	SU+RFE	73	67	78
	SU+GA	73	67	78
	SU+SA	64	67	62
	SU+BORUTA	71	66	75
SVMPOLY	No Feature Selection	84	77	90
	IG+RFE	82	74	90
	IG+GA	80	73	87
	IG+SA	71	61	81
	IG+BORUTA	78	71	86
	GR+RFE	78	73	83
	GR+GA	78	72	83
	GR+SA	67	77	56

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	GR+BORUTA	77	74	79
	CFS+RFE	68	54	81
	CFS +GA	69	54	83
	CFS +SA	68	64	72
	CFS+BORUTA	68	64	72
	Kİ-KARE+RFE	78	69	87
	Kİ-KARE +GA	78	71	84
	Kİ-KARE +SA	73	66	81
	Kİ-KARE +BORUTA	80	72	88
	RELİEF+RFE	79	73	86
	RELİEF +GA	79	76	81
	RELİEF +SA	65	60	71
	RELİEF +BORUTA	78	75	81
	SU+RFE	81	75	86
	SU+GA	81	75	86
	SU+SA	69	72	67
	SU+BORUTA	78	70	85
SVMRADIAL	No Feature Selection	78	75	80
	IG+RFE	77	73	81
	IG+GA	76	71	80
	IG+SA	71	66	76
	IG+BORUTA	76	75	78
	GR+RFE	74	72	76
	GR+GA	74	72	76
	GR+SA	67	76	58
	GR+BORUTA	75	74	76
	CFS+RFE	68	54	81
	CFS +GA	68	53	84
	CFS +SA	66	53	80
	CFS+BORUTA	66	53	80
	Kİ-KARE+RFE	75	74	76
	Kİ-KARE +GA	78	75	81
	Kİ-KARE +SA	72	64	80
	Kİ-KARE +BORUTA	78	74	81
	RELİEF+RFE	77	76	77
	RELİEF +GA	78	75	81
	RELİEF +SA	61	64	59
	RELİEF +BORUTA	78	78	78
	SU+RFE	76	70	81
	SU+GA	76	70	81
	SU+SA	67	67	68
	SU+BORUTA	74	69	78
LDA	No Feature Selection	72	68	76
	IG+RFE	75	71	78
	IG+GA	72	68	76
	IG+SA	71	69	74
	IG+BORUTA	72	72	72
	GR+RFE	71	71	72
	GR+GA	72	71	72
	GR+SA	67	61	74
	GR+BORUTA	71	71	71
	CFS+RFE	70	62	78
	CFS +GA	69	62	77
	CFS +SA	69	62	77
	CFS+BORUTA	69	62	75
	Kİ-KARE+RFE	73	71	75

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	Kİ-KARE +GA	72	70	74
	Kİ-KARE +SA	66	62	70
	Kİ-KARE +BORUTA	73	70	75
	RELİEF+RFE	72	70	74
	RELİEF +GA	72	72	71
	RELİEF +SA	61	69	54
	RELİEF +BORUTA	72	76	69
	SU+RFE	73	67	77
	SU+GA	73	67	77
	SU+SA	65	68	61
	SU+BORUTA	71	65	76
MLP	No Feature Selection	50	0	100
	IG+RFE	50	0	100
	IG+GA	50	0	100
	IG+SA	50	0	100
	IG+BORUTA	50	0	100
	GR+RFE	50	0	100
	GR+GA	50	0	100
	GR+SA	50	0	100
	GR+BORUTA	50	0	100
	CFS+RFE	68	53	82
	CFS +GA	69	70	68
	CFS +SA	68	64	72
	CFS+BORUTA	68	64	72
	Kİ-KARE+RFE	50	0	100
	Kİ-KARE +GA	50	0	100
	Kİ-KARE +SA	50	0	100
	Kİ-KARE +BORUTA	50	0	100
	RELİEF+RFE	50	0	100
	RELİEF +GA	50	0	100
	RELİEF +SA	50	0	100
	RELİEF +BORUTA	50	0	100
	SU+RFE	47	100	0
	SU+GA	47	100	0
	SU+SA	47	100	0
	SU+BORUTA	47	100	0
EVTREE	No Feature Selection	76	71	81
	IG+RFE	70	69	72
	IG+GA	73	66	79
	IG+SA	70	71	69
	IG+BORUTA	74	66	82
	GR+RFE	73	67	78
	GR+GA	74	69	79
	GR+SA	73	69	77
	GR+BORUTA	70	69	71
	CFS+RFE	68	54	81
	CFS +GA	68	54	81
	CFS +SA	67	54	80
	CFS+BORUTA	67	54	80
	Kİ-KARE+RFE	75	74	75
	Kİ-KARE +GA	71	65	78
	Kİ-KARE +SA	69	61	77
	Kİ-KARE +BORUTA	75	68	82
	RELİEF+RFE	72	70	74
	RELİEF +GA	74	68	80
	RELİEF +SA	69	72	65

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	RELİEF +BORUTA	75	72	79
	SU+RFE	70	62	77
	SU+GA	70	62	77
	SU+SA	68	64	70
	SU+BORUTA	70	61	78
RPART	No Feature Selection	72	66	78
	IG+RFE	67	63	71
	IG+GA	71	68	75
	IG+SA	68	63	73
	IG+BORUTA	70	72	68
	GR+RFE	70	66	74
	GR+GA	70	66	74
	GR+SA	61	95	28
	GR+BORUTA	68	66	70
	CFS+RFE	69	56	81
	CFS +GA	69	64	74
	CFS +SA	67	62	71
	CFS+BORUTA	67	62	71
	Kİ-KARE+RFE	68	66	69
	Kİ-KARE +GA	70	66	74
	Kİ-KARE +SA	66	59	74
	Kİ-KARE +BORUTA	65	59	71
	RELİEF+RFE	70	66	74
	RELİEF +GA	69	66	71
	RELİEF +SA	67	77	56
	RELİEF +BORUTA	70	72	68
	SU+RFE	72	64	78
	SU+GA	72	64	78
	SU+SA	64	50	77
	SU+BORUTA	72	64	79
C5.0	No Feature Selection	86	79	93
	IG+RFE	86	81	91
	IG+GA	89	83	94
	IG+SA	78	68	88
	IG+BORUTA	86	81	91
	GR+RFE	87	83	91
	GR+GA	88	85	91
	GR+SA	76	61	91
	GR+BORUTA	86	84	89
	CFS+RFE	68	54	81
	CFS +GA	68	54	81
	CFS +SA	68	64	72
	CFS+BORUTA	68	64	72
	Kİ-KARE+RFE	88	82	94
	Kİ-KARE +GA	89	85	94
	Kİ-KARE +SA	83	75	91
	Kİ-KARE +BORUTA	88	81	94
	RELİEF+RFE	86	81	91
	RELİEF +GA	88	86	89
	RELİEF +SA	78	69	88
	RELİEF +BORUTA	85	78	91
	SU+RFE	89	85	92
	SU+GA	89	85	92
	SU+SA	75	73	78
	SU+BORUTA	90	86	93
J48	No Feature Selection	82	76	89

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	IG+RFE	80	75	85
	IG+GA	84	74	94
	IG+SA	83	74	92
	IG+BORUTA	80	67	93
	GR+RFE	83	74	93
	GR+GA	84	75	92
	GR+SA	74	75	72
	GR+BORUTA	80	71	89
	CFS+RFE	68	54	81
	CFS +GA	69	64	74
	CFS +SA	67	54	80
	CFS+BORUTA	67	54	80
	Kİ-KARE+RFE	83	71	95
	Kİ-KARE +GA	83	74	91
	Kİ-KARE +SA	78	70	86
	Kİ-KARE +BORUTA	79	73	85
	RELİEF+RFE	80	70	90
	RELİEF +GA	80	76	84
	RELİEF +SA	78	69	86
	RELİEF +BORUTA	82	69	94
	SU+RFE	82	76	87
	SU+GA	82	76	87
	SU+SA	81	70	90
	SU+BORUTA	85	77	93
EARTH	No Feature Selection	74	72	76
	IG+RFE	75	71	79
	IG+GA	74	73	75
	IG+SA	70	66	74
	IG+BORUTA	74	74	74
	GR+RFE	73	71	75
	GR+GA	73	71	76
	GR+SA	67	71	64
	GR+BORUTA	71	72	70
	CFS+RFE	68	54	81
	CFS +GA	69	61	78
	CFS +SA	66	53	80
	CFS+BORUTA	66	53	80
	Kİ-KARE+RFE	71	71	72
	Kİ-KARE +GA	74	70	77
	Kİ-KARE +SA	73	70	75
	Kİ-KARE +BORUTA	70	66	74
	RELİEF+RFE	73	71	75
	RELİEF +GA	74	76	71
	RELİEF +SA	66	64	67
	RELİEF +BORUTA	73	74	71
	SU+RFE	73	68	78
	SU+GA	73	68	78
	SU+SA	69	67	70
	SU+BORUTA	74	67	79
RF	No Feature Selection	88	81	94
	IG+RFE	85	78	92
	IG+GA	88	80	95
	IG+SA	87	78	96
	IG+BORUTA	89	81	96
	GR+RFE	87	82	91
	GR+GA	89	84	94

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	GR+SA	84	78	90
	GR+BORUTA	86	79	93
	CFS+RFE	68	55	81
	CFS +GA	68	64	73
	CFS +SA	64	54	74
	CFS+BORUTA	64	54	74
	Kİ-KARE+RFE	88	84	93
	Kİ-KARE +GA	88	82	94
	Kİ-KARE +SA	90	86	94
	Kİ-KARE +BORUTA	89	84	94
	RELİEF+RFE	86	82	91
	RELİEF +GA	87	84	91
	RELİEF +SA	84	77	91
	RELİEF +BORUTA	88	80	96
	SU+RFE	88	83	93
	SU+GA	88	83	93
	SU+SA	85	78	91
	SU+BORUTA	90	85	95
GBM	No Feature Selection	77	76	78
	IG+RFE	78	75	81
	IG+GA	78	74	81
	IG+SA	71	66	76
	IG+BORUTA	79	77	81
	GR+RFE	78	76	80
	GR+GA	76	75	78
	GR+SA	75	74	76
	GR+BORUTA	78	75	81
	CFS+RFE	68	54	81
	CFS +GA	68	62	74
	CFS +SA	67	62	71
	CFS+BORUTA	67	62	71
	Kİ-KARE+RFE	75	74	76
	Kİ-KARE +GA	76	74	79
	Kİ-KARE +SA	74	72	76
	Kİ-KARE +BORUTA	80	75	85
	RELİEF+RFE	79	75	83
	RELİEF +GA	78	78	77
	RELİEF +SA	71	69	73
	RELİEF +BORUTA	88	80	96
	SU+RFE	80	78	82
	SU+GA	80	78	82
	SU+SA	74	73	74
	SU+BORUTA	84	81	86
XGBTREE	No Feature Selection	85	78	93
	IG+RFE	84	80	88
	IG+GA	86	79	94
	IG+SA	81	75	87
	IG+BORUTA	87	79	95
	GR+RFE	86	81	92
	GR+GA	83	76	90
	GR+SA	78	71	84
	GR+BORUTA	83	77	88
	CFS+RFE	70	61	79
	CFS +GA	69	61	78
	CFS +SA	68	61	75
	CFS+BORUTA	68	61	75

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	Kİ-KARE+RFE	87	81	94
	Kİ-KARE +GA	85	76	93
	Kİ-KARE +SA	83	73	92
	Kİ-KARE +BORUTA	87	82	91
	RELİEF+RFE	86	79	93
	RELİEF +GA	83	81	85
	RELİEF +SA	77	71	82
	RELİEF +BORUTA	85	77	93
	SU+RFE	86	81	91
	SU+GA	86	81	91
	SU+SA	79	75	83
	SU+BORUTA	88	82	93
TREEB AG	No Feature Selection	87	80	94
	IG+RFE	83	75	90
	IG+GA	89	82	95
	IG+SA	87	77	96
	IG+BORUTA	87	77	96
	GR+RFE	84	76	93
	GR+GA	85	77	93
	GR+SA	84	78	89
	GR+BORUTA	85	79	91
	CFS+RFE	68	55	81
	CFS +GA	68	62	74
	CFS +SA	64	46	81
	CFS+BORUTA	64	46	81
	Kİ-KARE+RFE	85	78	92
	Kİ-KARE +GA	86	80	93
	Kİ-KARE +SA	85	75	95
	Kİ-KARE +BORUTA	85	75	94
	RELİEF+RFE	87	83	91
	RELİEF +GA	86	81	90
	RELİEF +SA	85	79	91
	RELİEF +BORUTA	85	77	93
	SU+RFE	85	80	89
	SU+GA	85	80	89
	SU+SA	83	75	91
	SU+BORUTA	89	81	95
ADABOOST	No Feature Selection	89	86	93
	IG+RFE	88	84	93
	IG+GA	89	85	94
	IG+SA	89	83	96
	IG+BORUTA	88	86	91
	GR+RFE	88	86	89
	GR+GA	88	84	91
	GR+SA	86	83	89
	GR+BORUTA	90	86	93
	CFS+RFE	69	62	76
	CFS +GA	68	62	74
	CFS +SA	64	46	81
	CFS+BORUTA	64	46	81
	Kİ-KARE+RFE	90	88	92
	Kİ-KARE +GA	89	86	92
	Kİ-KARE +SA	89	86	93
	Kİ-KARE +BORUTA	89	84	93
	RELİEF+RFE	88	88	89
	RELİEF +GA	86	84	88

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
	RELİEF +SA	83	76	90
	RELİEF +BORUTA	90	85	95
	SU+RFE	86	85	86
	SU+GA	86	85	86
	SU+SA	88	86	91
	SU+BORUTA	90	88	91
GLMBOOST	No Feature Selection	73	69	76
	IG+RFE	74	70	79
	IG+GA	72	69	76
	IG+SA	71	69	74
	IG+BORUTA	72	73	71
	GR+RFE	73	71	74
	GR+GA	72	71	72
	GR+SA	67	61	74
	GR+BORUTA	71	71	72
	CFS+RFE	70	62	78
	CFS +GA	69	64	74
	CFS +SA	69	62	75
	CFS+BORUTA	69	62	75
	Kİ-KARE+RFE	73	71	74
	Kİ-KARE +GA	72	69	74
	Kİ-KARE +SA	66	64	69
	Kİ-KARE +BORUTA	73	70	76
	RELİEF+RFE	73	71	75
	RELİEF +GA	71	71	71
	RELİEF +SA	62	70	54
	RELİEF +BORUTA	71	74	69
	SU+RFE	73	67	78
	SU+GA	73	67	78
	SU+SA	64	67	61
	SU+BORUTA	71	67	75
LOGITBOOST	No Feature Selection	70	69	71
	IG+RFE	71	77	66
	IG+GA	70	73	67
	IG+SA	68	59	77
	IG+BORUTA	70	66	74
	GR+RFE	69	73	66
	GR+GA	69	73	66
	GR+SA	63	56	70
	GR+BORUTA	70	71	69
	CFS+RFE	68	53	83
	CFS +GA	69	53	84
	CFS +SA	67	53	81
	CFS+BORUTA	67	53	81
	Kİ-KARE+RFE	66	72	59
	Kİ-KARE +GA	69	73	66
	Kİ-KARE +SA	64	49	79
	Kİ-KARE +BORUTA	68	70	66
	RELİEF+RFE	69	73	66
	RELİEF +GA	70	73	66
	RELİEF +SA	62	52	72
	RELİEF +BORUTA	72	57	87
	SU+RFE	73	70	76
	SU+GA	73	70	76
	SU+SA	65	58	70
	SU+BORUTA	72	63	80

ALGORİTMA	ÖZNİTELİK SEÇİM YÖNTEMİ	Acc (%)	Sen (%)	Spe (%)
ROTATION FOREST	No Feature Selection	78	74	82
	IG+RFE	74	71	77
	IG+GA	75	74	76
	IG+SA	73	70	76
	IG+BORUTA	76	74	78
	GR+RFE	75	69	80
	GR+GA	75	72	78
	GR+SA	74	74	73
	GR+BORUTA	73	69	77
	CFS+RFE	66	48	85
	CFS +GA	67	49	84
	CFS +SA	67	54	80
	CFS+BORUTA	67	54	80
	Kİ-KARE+RFE	77	74	79
	Kİ-KARE +GA	75	71	78
	Kİ-KARE +SA	70	61	79
	Kİ-KARE +BORUTA	75	73	78
	RELİEF+RFE	72	72	71
	RELİEF +GA	74	71	76
	RELİEF +SA	73	71	74
	RELİEF +BORUTA	76	74	79
	SU+RFE	73	70	76
	SU+GA	73	70	76
	SU+SA	70	69	70
	SU+BORUTA	76	70	81