

## 1. KẾT QUẢ CHỌN ĐẶC TRƯNG

ID	Datasets	Datapoints	Dimensions	N_Boruta	N_mRMR	mRMR-Boruta
1	E-GEOD-20685	327	54627	1878	1878	520
2	E-GEOD-20711	90	54675	701	701	86
3	E-GEOD-21050	310	54613	3028	3028	84
4	E-GEOD-21122	158	22283	856	856	193
5	E-GEOD-29354	53	22215	237	237	29
6	E-GEOD-30784	229	54675	732	732	135
7	E-GEOD-31312	498	54630	3301	3301	214
8	E-GEOD-31552	111	33297	592	592	79
9	E-GEOD-32537	217	11950	1444	1444	76
10	E-GEOD-33315	575	22283	3132	3132	547
11	E-GEOD-36895	76	54675	768	768	49
12	E-GEOD-37364	94	54675	514	514	76
13	E-GEOD-39582	566	54675	4251	4251	772
14	E-GEOD-39716	53	33297	311	311	66
15	E-GEOD-44077	226	33252	210	210	139
16	E-GEOD-47460	582	15261	3339	3339	181
17	E-GEOD-63270	104	18989	879	879	94
18	E-GEOD-63885	101	54675	916	916	49
19	E-GEOD-65106	59	33297	328	328	17
20	E-GEOD-6532	327	22645	1012	1012	82
21	E-GEOD-66533	58	54675	156	156	54
22	E-GEOD-68468	390	22283	1035	1035	215
23	E-GEOD-68606	274	22283	651	651	544
24	E-GEOD-7307	677	54675	4958	4958	6
25	E-GEOD-73685	183	33297	1087	1087	334

## 2. KẾT QUẢ QUÁ TRÌNH HUẤN LUYỆN VỚI ML

### 1. mRMR -ML

Dataset ID	Methods	N_mRMR	Accuracy (%)	Precision (%)	Recall (%)	F1 Score (%)	Training times (s)
1	SVM	1878	96.35	97.49	96.46	96.68	0.53
	RandomForest		87.17	91.97	84.79	86.51	5.57
	XGBoost		90.24	93.62	88.88	89.65	15.59
	GradientBoost		79.23	83.02	74.48	76.16	1634.88
2	SVM	701	87.78	93.89	93.89	87.78	0.30
	RandomForest		85.56	92.78	92.78	85.56	19.09
	XGBoost		82.22	91.11	91.11	82.22	15.17
	GradientBoost		84.44	92.22	92.22	84.44	1288.21
3	SVM	3028	74.84	84.19	60.46	60.41	0.76
	RandomForest		73.23	89.44	57.75	57.17	5.15
	XGBoost		75.48	81.15	61.59	61.68	17.31
	GradientBoost		70.97	78.45	57.06	56.76	1235.22
4	SVM	856	89.87	94.94	94.94	89.87	1.24
	RandomForest		82.28	91.14	91.14	82.28	45.95
	XGBoost		86.71	93.35	93.35	86.71	58.13
	GradientBoost		87.97	93.99	93.99	87.97	7055.70
5	SVM	237	83.02	91.51	91.51	83.02	0.08
	RandomForest		81.13	90.57	90.57	81.13	8.62
	XGBoost		86.79	93.40	93.40	86.79	2.41
	GradientBoost		77.36	88.68	88.68	77.36	92.67
6	SVM	732	95.63	97.82	97.82	95.63	1.35
	RandomForest		92.58	96.29	96.29	92.58	77.53
	XGBoost		94.32	97.16	97.16	94.32	54.52
	GradientBoost		93.89	96.94	96.94	93.89	5603.66
7	SVM	3301	88.56	92.73	66.30	64.30	1.97
	RandomForest		87.76	92.04	64.61	61.44	9.64
	XGBoost		86.95	88.21	64.54	61.93	31.97
	GradientBoost		86.14	90.88	63.95	61.32	2241.09
8	SVM	592	90.99	95.50	95.50	90.99	0.34
	RandomForest		89.19	94.59	94.59	89.19	24.14
	XGBoost		90.99	95.50	95.50	90.99	13.47
	GradientBoost		86.49	93.24	93.24	86.49	984.96
9	SVM	1444	78.34	89.17	89.17	78.34	5.03
	RandomForest		77.42	88.71	88.71	77.42	88.98
	XGBoost		80.18	90.09	90.09	80.18	188.91
	GradientBoost		78.80	89.40	89.40	78.80	23124.69
10	SVM	3132	86.45	94.70	75.45	77.18	3.02
	RandomForest		74.10	91.40	47.45	45.97	11.52
	XGBoost		89.25	94.72	78.85	78.60	69.65
	GradientBoost		84.88	92.24	72.11	72.40	8221.51
11	SVM	768	72.37	86.18	86.18	72.37	0.39
	RandomForest		73.68	86.84	86.84	73.68	14.92
	XGBoost		89.47	94.74	94.74	89.47	18.64
	GradientBoost		76.32	88.16	88.16	76.32	2182.91
12	SVM	514	84.04	92.02	92.02	84.04	0.25
	RandomForest		89.36	94.68	94.68	89.36	18.83
	XGBoost		86.17	93.09	93.09	86.17	10.04
	GradientBoost		90.43	95.21	95.21	90.43	769.23
	SVM	4251	87.79	90.61	86.50	87.43	3.73

13	RandomForest		77.57	85.18	74.47	76.56	12.88
	XGBoost		85.14	86.86	84.11	84.50	79.36
	GradientBoost		80.92	85.27	79.84	80.63	6799.47
14	SVM	311	94.34	97.17	97.17	94.34	0.08
	RandomForest		96.23	98.11	98.11	96.23	8.46
	XGBoost		98.11	99.06	99.06	98.11	2.61
	GradientBoost		92.45	96.23	96.23	92.45	105.81
15	SVM	210	99.56	99.78	99.78	99.56	0.69
	RandomForest		99.56	99.78	99.78	99.56	50.66
	XGBoost		98.67	99.34	99.34	98.67	20.30
	GradientBoost		97.79	98.89	98.89	97.79	1740.48
16	SVM	3339	81.62	93.42	27.01	25.79	3.79
	RandomForest		78.70	94.49	22.90	21.00	12.09
	XGBoost		80.93	88.89	29.14	26.93	79.57
	GradientBoost		79.55	83.21	32.86	30.43	9155.01
17	SVM	879	68.27	84.13	84.13	68.27	0.55
	RandomForest		70.19	85.10	85.10	70.19	25.01
	XGBoost		68.27	84.13	84.13	68.27	30.91
	GradientBoost		58.65	79.33	79.33	58.65	3906.01
18	SVM	916	75.25	87.62	87.62	75.25	0.37
	RandomForest		65.35	82.67	82.67	65.35	23.65
	XGBoost		73.27	86.63	86.63	73.27	19.44
	GradientBoost		74.26	87.13	87.13	74.26	1701.31
19	SVM	328	91.53	95.76	95.76	91.53	0.10
	RandomForest		84.75	92.37	92.37	84.75	10.12
	XGBoost		96.61	98.31	98.31	96.61	3.38
	GradientBoost		88.14	94.07	94.07	88.14	148.30
20	SVM	1012	92.71	95.04	70.45	69.08	0.10
	RandomForest		91.45	93.97	63.75	61.72	3.58
	XGBoost		91.76	94.13	67.08	65.16	4.31
	GradientBoost		90.84	90.39	63.19	61.34	426.52
21	SVM	156	98.28	99.14	99.14	98.28	0.09
	RandomForest		96.55	98.28	98.28	96.55	9.04
	XGBoost		94.83	97.41	97.41	94.83	2.25
	GradientBoost		91.38	95.69	95.69	91.38	53.79
22	SVM	1035	92.82	96.73	82.38	84.63	0.43
	RandomForest		85.90	94.91	65.82	69.09	5.17
	XGBoost		96.67	98.31	90.72	91.95	8.73
	GradientBoost		95.64	98.25	86.90	89.50	1064.73
23	SVM	651	100.00	100.00	100.00	100.00	3.91
	RandomForest		87.59	93.80	93.80	87.59	91.73
	XGBoost		100.00	100.00	100.00	100.00	148.29
	GradientBoost		100.00	100.00	100.00	100.00	23068.88
24	SVM	4958	82.87	98.09	11.19	10.15	17.71
	RandomForest		82.87	98.09	11.19	10.15	17.58
	XGBoost		82.87	98.09	11.19	10.15	158.94
	GradientBoost		81.84	84.99	15.48	9.60	19806.93
25	SVM	1087	86.89	93.44	93.44	86.89	2.29
	RandomForest		81.42	90.71	90.71	81.42	60.58
	XGBoost		86.34	93.17	93.17	86.34	101.93
	GradientBoost		79.23	89.62	89.62	79.23	14004.84

## 2. Boruta -ML

Dataset ID	Methods	N_Boruta	Accuracy (%)	Precision (%)	Recall (%)	F1 Score (%)	Training times (s)
1	SVM	545	95.11	96.11	95.63	95.55	0.12
	RandomForest		92.38	94.37	92.19	92.70	5.95
	XGBoost		83.79	88.10	83.44	83.82	41.82
	GradientBoost		86.88	89.92	85.56	86.27	257.57
2	SVM	111	84.44	92.22	92.22	84.44	0.20
	RandomForest		82.22	91.11	91.11	82.22	18.43
	XGBoost		75.56	87.78	87.78	75.56	25.51
	GradientBoost		77.78	88.89	88.89	77.78	132.28
3	SVM	72	67.42	63.22	59.70	60.20	0.10
	RandomForest		75.48	75.87	62.48	62.59	3.44
	XGBoost		72.58	72.44	60.78	61.23	3.00
	GradientBoost		75.48	73.40	64.95	65.56	18.93
4	SVM	271	91.77	95.89	95.89	91.77	0.66
	RandomForest		91.77	95.89	95.89	91.77	47.50
	XGBoost		82.91	91.46	91.46	82.91	179.79
	GradientBoost		82.91	91.46	91.46	82.91	1267.80
5	SVM	28	84.91	92.45	92.45	84.91	0.09
	RandomForest		86.79	93.40	93.40	86.79	9.08
	XGBoost		79.25	89.62	89.62	79.25	4.34
	GradientBoost		75.47	87.74	87.74	75.47	13.31
6	SVM	171	95.63	97.82	97.82	95.63	0.65
	RandomForest		93.45	96.72	96.72	93.45	70.87
	XGBoost		93.45	96.72	96.72	93.45	120.62
	GradientBoost		92.58	96.29	96.29	92.58	746.43
7	SVM	213	88.56	77.87	70.91	71.14	0.13
	RandomForest		88.36	92.33	65.05	61.84	6.47
	XGBoost		84.13	81.75	63.01	61.08	9.65
	GradientBoost		86.35	66.69	65.90	64.77	80.37
8	SVM	79	90.09	95.05	95.05	90.09	0.20
	RandomForest		90.99	95.50	95.50	90.99	22.48
	XGBoost		90.99	95.50	95.50	90.99	18.14
	GradientBoost		87.39	93.69	93.69	87.39	89.22
9	SVM	96	81.11	90.55	90.55	81.11	0.86
	RandomForest		78.34	89.17	89.17	78.34	67.34
	XGBoost		77.88	88.94	88.94	77.88	131.99
	GradientBoost		74.65	87.33	87.33	74.65	918.15
10	SVM	483	88.36	93.09	81.08	82.03	0.36
	RandomForest		86.11	94.01	75.29	75.57	12.33
	XGBoost		86.47	93.10	76.25	75.34	53.30
	GradientBoost		84.17	87.60	71.19	71.11	696.12
11	SVM	39	75.00	87.50	87.50	75.00	0.17
	RandomForest		77.63	88.82	88.82	77.63	13.40
	XGBoost		73.68	86.84	86.84	73.68	19.19
	GradientBoost		71.05	85.53	85.53	71.05	100.75
12	SVM	59	79.79	89.89	89.89	79.79	0.16
	RandomForest		87.23	93.62	93.62	87.23	17.42
	XGBoost		88.30	94.15	94.15	88.30	13.15
	GradientBoost		82.98	91.49	91.49	82.98	69.00
	SVM	640	86.74	89.49	86.49	87.12	0.30
	RandomForest		84.28	87.07	83.63	84.31	12.32

13	XGBoost		77.37	78.96	75.98	75.62	52.37
	GradientBoost		83.38	86.57	82.10	82.51	547.70
14	SVM	124	94.34	97.17	97.17	94.34	0.07
	RandomForest		94.34	97.17	97.17	94.34	9.21
	XGBoost		90.57	95.28	95.28	90.57	6.42
	GradientBoost		88.68	94.34	94.34	88.68	27.50
15	SVM	227	99.56	99.78	99.78	99.56	0.55
	RandomForest		99.56	99.78	99.78	99.56	58.07
	XGBoost		97.35	98.67	98.67	97.35	149.74
	GradientBoost		96.46	98.23	98.23	96.46	943.80
16	SVM	135	80.76	70.92	31.08	29.44	0.22
	RandomForest		80.08	90.13	27.32	24.79	8.14
	XGBoost		79.56	82.44	27.79	24.62	16.09
	GradientBoost		78.18	70.58	32.00	25.73	201.91
17	SVM	80	71.15	85.58	85.58	71.15	0.28
	RandomForest		79.81	89.90	89.90	79.81	21.93
	XGBoost		73.08	86.54	86.54	73.08	35.63
	GradientBoost		76.92	88.46	88.46	76.92	239.80
18	SVM	38	81.19	90.59	90.59	81.19	0.21
	RandomForest		73.27	86.63	86.63	73.27	20.56
	XGBoost		71.29	85.64	85.64	71.29	14.43
	GradientBoost		65.35	82.67	82.67	65.35	59.80
19	SVM	3	76.27	88.14	88.14	76.27	0.10
	RandomForest		79.66	89.83	89.83	79.66	9.71
	XGBoost		81.36	90.68	90.68	81.36	3.56
	GradientBoost		81.36	90.68	90.68	81.36	9.19
20	SVM	87	89.33	80.78	67.60	67.26	0.03
	RandomForest		91.15	92.25	66.52	63.69	2.95
	XGBoost		91.75	90.98	66.98	65.27	3.29
	GradientBoost		90.54	82.25	65.87	63.48	21.70
21	SVM	130	96.55	98.28	98.28	96.55	0.09
	RandomForest		96.55	98.28	98.28	96.55	10.30
	XGBoost		79.31	89.66	89.66	79.31	6.86
	GradientBoost		86.21	93.10	93.10	86.21	29.55
22	SVM	278	97.18	97.51	93.09	93.01	0.09
	RandomForest		96.15	97.74	90.87	91.89	5.63
	XGBoost		96.15	97.24	91.70	92.10	16.80
	GradientBoost		96.67	96.21	92.54	90.99	150.77
23	SVM	700	100.00	100.00	100.00	100.00	3.17
	RandomForest		100.00	100.00	100.00	100.00	153.45
	XGBoost		100.00	100.00	100.00	100.00	1445.26
	GradientBoost		100.00	100.00	100.00	100.00	10859.63
24	SVM	3	54.96	23.34	29.32	11.54	4.72
	RandomForest		82.58	88.79	13.71	13.12	2.72
	XGBoost		82.43	93.10	11.67	10.70	2.74
	GradientBoost		77.42	58.39	18.70	11.95	12.87
25	SVM	343	85.79	92.90	92.90	85.79	0.84
	RandomForest		83.06	91.53	91.53	83.06	66.67
	XGBoost		82.51	91.26	91.26	82.51	372.10
	GradientBoost		77.60	88.80	88.80	77.60	2429.28

### 3. MRMR-Boruta -ML

Dataset ID	Methods	mRMR-Boruta	Accuracy (%)	Precision (%)	Recall (%)	F1 Score (%)	Training times (s)
1	SVM	520	95.72	96.64	96.47	96.28	0.13
	RandomForest		90.83	93.56	91.25	91.46	2.93
	XGBoost		84.40	87.27	84.56	84.37	11.75
	GradientBoost		86.59	88.80	84.56	85.10	245.66
2	SVM	86	85.56	92.78	92.78	85.56	0.18
	RandomForest		85.56	92.78	92.78	85.56	9.49
	XGBoost		78.89	89.44	89.44	78.89	9.61
	GradientBoost		77.78	88.89	88.89	77.78	99.90
3	SVM	84	70.00	67.38	64.86	64.77	0.06
	RandomForest		78.06	80.70	65.86	66.51	1.77
	XGBoost		74.84	76.81	66.52	67.15	2.50
	GradientBoost		75.16	77.12	65.22	65.97	19.95
4	SVM	193	93.67	96.84	96.84	93.67	0.66
	RandomForest		91.77	95.89	95.89	91.77	22.58
	XGBoost		86.71	93.35	93.35	86.71	45.36
	GradientBoost		86.71	93.35	93.35	86.71	873.44
5	SVM	29	98.11	99.06	99.06	98.11	0.07
	RandomForest		90.57	95.28	95.28	90.57	4.84
	XGBoost		84.91	92.45	92.45	84.91	2.35
	GradientBoost		79.25	89.62	89.62	79.25	11.43
6	SVM	135	96.51	98.25	98.25	96.51	0.60
	RandomForest		93.45	96.72	96.72	93.45	33.41
	XGBoost		92.58	96.29	96.29	92.58	34.59
	GradientBoost		92.58	96.29	96.29	92.58	578.44
7	SVM	214	89.96	83.25	73.97	74.76	0.13
	RandomForest		87.56	88.77	64.45	61.40	3.18
	XGBoost		80.10	65.64	61.69	61.30	7.12
	GradientBoost		88.16	83.18	69.43	69.53	78.35
8	SVM	79	88.29	94.14	94.14	88.29	0.18
	RandomForest		92.79	96.40	96.40	92.79	11.47
	XGBoost		90.99	95.50	95.50	90.99	8.49
	GradientBoost		90.09	95.05	95.05	90.09	83.25
9	SVM	76	80.65	90.32	90.32	80.65	0.87
	RandomForest		78.80	89.40	89.40	78.80	33.28
	XGBoost		80.18	90.09	90.09	80.18	51.72
	GradientBoost		74.65	87.33	87.33	74.65	703.48
10	SVM	547	89.77	95.71	81.78	83.00	0.47
	RandomForest		86.11	93.88	71.80	71.51	6.06
	XGBoost		84.89	84.31	76.32	75.94	37.58
	GradientBoost		85.40	85.25	72.52	71.79	748.95
11	SVM	49	76.32	88.16	88.16	76.32	0.16
	RandomForest		78.95	89.47	89.47	78.95	7.36
	XGBoost		85.53	92.76	92.76	85.53	11.56
	GradientBoost		78.95	89.47	89.47	78.95	99.93
12	SVM	76	84.04	92.02	92.02	84.04	0.16
	RandomForest		89.36	94.68	94.68	89.36	9.44
	XGBoost		81.91	90.96	90.96	81.91	7.33
	GradientBoost		80.85	90.43	90.43	80.85	73.04
	SVM	777	88.15	90.65	88.48	88.62	0.40
	RandomForest		85.33	88.65	84.60	85.57	6.39

13	XGBoost	132	77.40	80.43	77.41	77.26	37.86
	GradientBoost		83.38	86.59	81.89	82.55	648.04
14	SVM	66	96.23	98.11	98.11	96.23	0.07
	RandomForest		94.34	97.17	97.17	94.34	4.84
	XGBoost		94.34	97.17	97.17	94.34	2.63
	GradientBoost		84.91	92.45	92.45	84.91	17.45
15	SVM	139	99.56	99.78	99.78	99.56	0.54
	RandomForest		99.56	99.78	99.78	99.56	27.76
	XGBoost		97.35	98.67	98.67	97.35	30.11
	GradientBoost		97.35	98.67	98.67	97.35	602.41
16	SVM	181	80.92	75.71	31.41	30.05	0.27
	RandomForest		80.07	91.59	26.13	24.28	4.55
	XGBoost		79.39	70.00	31.10	28.54	19.79
	GradientBoost		79.73	72.79	35.86	30.39	265.45
17	SVM	94	77.88	88.94	88.94	77.88	0.28
	RandomForest		86.54	93.27	93.27	86.54	11.85
	XGBoost		74.04	87.02	87.02	74.04	17.58
	GradientBoost		71.15	85.58	85.58	71.15	260.17
18	SVM	49	85.15	92.57	92.57	85.15	0.20
	RandomForest		80.20	90.10	90.10	80.20	10.88
	XGBoost		76.24	88.12	88.12	76.24	9.80
	GradientBoost		76.24	88.12	88.12	76.24	66.02
19	SVM	17	98.31	99.15	99.15	98.31	0.07
	RandomForest		100.00	100.00	100.00	100.00	5.28
	XGBoost		91.53	95.76	95.76	91.53	2.94
	GradientBoost		84.75	92.37	92.37	84.75	10.47
20	SVM	82	92.67	87.50	76.34	74.82	0.03
	RandomForest		91.75	94.19	63.91	61.93	1.44
	XGBoost		92.05	91.30	63.75	62.24	1.61
	GradientBoost		91.75	91.02	66.87	65.26	20.39
21	SVM	54	98.28	99.14	99.14	98.28	0.08
	RandomForest		96.55	98.28	98.28	96.55	5.21
	XGBoost		94.83	97.41	97.41	94.83	2.56
	GradientBoost		87.93	93.97	93.97	87.93	13.72
22	SVM	215	97.69	98.49	93.70	93.89	0.10
	RandomForest		96.92	98.37	91.88	92.73	2.51
	XGBoost		96.41	97.65	91.86	92.39	4.49
	GradientBoost		96.15	93.76	91.32	88.15	113.85
23	SVM	544	100.00	100.00	100.00	100.00	3.16
	RandomForest		100.00	100.00	100.00	100.00	69.47
	XGBoost		98.54	99.27	99.27	98.54	283.98
	GradientBoost		100.00	100.00	100.00	100.00	8106.03
24	SVM	6	66.91	36.19	20.95	9.30	1.08
	RandomForest		82.28	84.68	12.04	11.55	1.95
	XGBoost		81.53	80.41	11.54	10.91	3.76
	GradientBoost		78.58	59.54	19.86	10.57	18.16
25	SVM	334	84.15	92.08	92.08	84.15	0.96
	RandomForest		87.43	93.72	93.72	87.43	33.74
	XGBoost		84.70	92.35	92.35	84.70	91.69
	GradientBoost		82.51	91.26	91.26	82.51	2273.34

# 0. Chọn đặc trưng với RF

ID	Methods	n_ RF	Accuracy (%)	Precision (%)	Recall (%)	F1 Score (%)	Training times (s)
1	SVM	1878	93.29	94.91	93.85	93.94	0.50
	RandomForest		92.05	94.61	91.41	92.33	4.43
	XGBoost		79.24	83.29	77.78	78.42	35.47
	GradientBoost		82.28	85.68	79.91	80.35	809.29
2	SVM	701	83.33	91.67	91.67	83.33	0.29
	RandomForest		76.67	88.33	88.33	76.67	12.02
	XGBoost		81.11	90.56	90.56	81.11	27.45
	GradientBoost		62.22	81.11	81.11	62.22	637.84
3	SVM	3028	73.23	80.70	59.90	60.23	0.76
	RandomForest		74.84	87.36	59.39	58.66	5.39
	XGBoost		66.77	68.26	56.48	56.65	41.10
	GradientBoost		71.29	75.88	60.69	61.52	589.09
4	SVM	856	89.87	94.94	94.94	89.87	1.20
	RandomForest		89.24	94.62	94.62	89.24	30.56
	XGBoost		77.22	88.61	88.61	77.22	113.36
	GradientBoost		82.28	91.14	91.14	82.28	3391.88
5	SVM	237	81.13	90.57	90.57	81.13	0.08
	RandomForest		79.25	89.62	89.62	79.25	4.96
	XGBoost		73.58	86.79	86.79	73.58	3.72
	GradientBoost		66.04	83.02	83.02	66.04	47.37
6	SVM	732	91.70	95.85	95.85	91.70	1.31
	RandomForest		92.14	96.07	96.07	92.14	51.88
	XGBoost		89.52	94.76	94.76	89.52	131.53
	GradientBoost		92.58	96.29	96.29	92.58	2848.49
7	SVM	3301	87.34	91.73	64.19	61.10	1.95
	RandomForest		86.55	91.12	63.70	60.57	9.72
	XGBoost		78.88	71.54	60.97	59.86	82.84
	GradientBoost		83.33	71.76	61.87	59.69	1150.59
8	SVM	592	90.09	95.05	95.05	90.09	0.30
	RandomForest		90.99	95.50	95.50	90.99	14.86
	XGBoost		88.29	94.14	94.14	88.29	27.78
	GradientBoost		86.49	93.24	93.24	86.49	495.06
9	SVM	1444	77.42	88.71	88.71	77.42	4.41
	RandomForest		77.88	88.94	88.94	77.88	75.35
	XGBoost		80.65	90.32	90.32	80.65	437.11
	GradientBoost		74.65	87.33	87.33	74.65	11837.68
10	SVM	3132	86.62	94.65	76.14	77.73	3.03
	RandomForest		83.34	93.20	68.17	67.70	13.03
	XGBoost		83.86	87.26	77.52	76.51	151.82
	GradientBoost		85.93	89.54	76.82	76.09	4327.07
11	SVM	768	75.00	87.50	87.50	75.00	0.39
	RandomForest		75.00	87.50	87.50	75.00	9.45
	XGBoost		71.05	85.53	85.53	71.05	35.58
	GradientBoost		63.16	81.58	81.58	63.16	1105.45
12	SVM	514	79.79	89.89	89.89	79.79	0.26
	RandomForest		84.04	92.02	92.02	84.04	11.48
	XGBoost		72.34	86.17	86.17	72.34	21.81
	GradientBoost		71.28	85.64	85.64	71.28	440.73
	SVM	1251	85.14	89.01	83.95	84.99	3.81
	RandomForest		81.62	86.54	80.93	82.55	13.71



13	XGBoost	4251	70.65	71.20	70.64	69.59	188.68
	GradientBoost		79.67	82.20	77.90	78.60	3627.00
14	SVM	311	88.68	94.34	94.34	88.68	0.08
	RandomForest		90.57	95.28	95.28	90.57	5.04
	XGBoost		86.79	93.40	93.40	86.79	3.85
	GradientBoost		88.68	94.34	94.34	88.68	54.04
15	SVM	210	99.56	99.78	99.78	99.56	0.52
	RandomForest		99.12	99.56	99.56	99.12	29.10
	XGBoost		96.90	98.45	98.45	96.90	36.54
	GradientBoost		97.35	98.67	98.67	97.35	928.84
16	SVM	3339	80.59	92.54	28.22	26.80	3.65
	RandomForest		78.70	92.70	24.75	23.55	16.60
	XGBoost		78.87	75.59	27.83	26.09	192.21
	GradientBoost		78.53	70.79	30.63	28.48	4761.71
17	SVM	879	63.46	81.73	81.73	63.46	0.55
	RandomForest		69.23	84.62	84.62	69.23	16.75
	XGBoost		64.42	82.21	82.21	64.42	61.50
	GradientBoost		65.38	82.69	82.69	65.38	1872.67
18	SVM	916	71.29	85.64	85.64	71.29	0.38
	RandomForest		66.34	83.17	83.17	66.34	16.34
	XGBoost		61.39	80.69	80.69	61.39	44.85
	GradientBoost		69.31	84.65	84.65	69.31	893.66
19	SVM	328	83.05	91.53	91.53	83.05	0.09
	RandomForest		83.05	91.53	91.53	83.05	6.02
	XGBoost		79.66	89.83	89.83	79.66	5.71
	GradientBoost		77.97	88.98	88.98	77.97	78.34
20	SVM	1012	89.02	79.76	61.42	60.20	0.11
	RandomForest		91.15	93.74	63.47	61.50	2.83
	XGBoost		90.22	86.93	62.63	61.09	12.03
	GradientBoost		91.45	90.77	63.75	61.82	228.45
21	SVM	156	96.55	98.28	98.28	96.55	0.08
	RandomForest		93.10	96.55	96.55	93.10	5.15
	XGBoost		93.10	96.55	96.55	93.10	3.00
	GradientBoost		86.21	93.10	93.10	86.21	28.77
22	SVM	1035	95.38	97.86	88.80	90.43	0.37
	RandomForest		95.90	97.64	89.62	91.01	4.64
	XGBoost		95.13	96.42	90.73	91.05	17.46
	GradientBoost		96.15	94.48	92.11	89.21	535.88
23	SVM	651	100.00	100.00	100.00	100.00	3.80
	RandomForest		100.00	100.00	100.00	100.00	70.47
	XGBoost		97.81	98.91	98.91	97.81	290.01
	GradientBoost		100.00	100.00	100.00	100.00	9510.73
24	SVM	4958	82.87	98.09	11.19	10.15	15.40
	RandomForest		82.87	94.77	11.19	10.17	74.56
	XGBoost		82.72	92.77	11.71	10.90	385.61
	GradientBoost		78.29	62.47	20.01	9.93	9914.35
25	SVM	1087	86.89	93.44	93.44	86.89	2.11
	RandomForest		83.61	91.80	91.80	83.61	42.49
	XGBoost		72.68	86.34	86.34	72.68	228.70
	GradientBoost		78.14	89.07	89.07	78.14	7062.85































































