

Supplementary Materials: Exploration of Machine Learning for Hyperuricemia Prediction Models Based on Basic Health Checkup Tests

Table 1. Performance measures for each algorithm.

Criterion	Training Set						Test Set					
	Accuracy	Sensitivity	Specificity	BCR	Precision	F1score	Accuracy	Sensitivity	Specificity	BCR	Precision	F1 Score
Discrimination analysis classification												
Max sensitivity criterion	0.70	0.58	0.73	0.65	0.35	0.44	0.70	0.59	0.73	0.65	0.37	0.45
Max specificity criterion	0.80	0.00	1.00	0.00	N/A	N/A	0.78	0.00	1.00	0.00	N/A	N/A
Max F1-score criterion	0.72	0.55	0.77	0.65	0.37	0.44	0.71	0.54	0.76	0.64	0.38	0.45
Max BCR criterion	0.70	0.58	0.73	0.65	0.35	0.44	0.70	0.59	0.73	0.65	0.37	0.45
k-nearest neighbor classification												
Max sensitivity criterion	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.34	0.82	0.53	0.34	0.34
Max specificity criterion	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.15	0.95	0.38	0.47	0.23
Max F1-score criterion	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.34	0.82	0.53	0.34	0.34
Max BCR criterion	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.34	0.82	0.53	0.34	0.34
Naïve Bayes classification												
Max sensitivity criterion	0.62	0.73	0.60	0.66	0.31	0.44	0.63	0.73	0.60	0.66	0.33	0.45
Max specificity criterion	0.80	0.00	1.00	0.00	N/A	N/A	0.78	0.00	1.00	0.00	N/A	N/A
Max F1-score criterion	0.69	0.61	0.71	0.66	0.34	0.44	0.69	0.61	0.71	0.66	0.36	0.45
Max BCR criterion	0.62	0.73	0.60	0.66	0.31	0.44	0.63	0.73	0.60	0.66	0.33	0.45
Support vector machine classification												
Max sensitivity criterion	0.53	0.48	0.54	0.51	0.21	0.29	0.52	0.48	0.54	0.51	0.22	0.30
Max specificity criterion	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.00	1.00	0.00	N/A	N/A
Max F1-score criterion	0.53	0.48	0.54	0.51	0.21	0.29	0.52	0.48	0.54	0.51	0.22	0.30
Max BCR criterion	0.53	0.48	0.54	0.51	0.21	0.29	0.52	0.48	0.54	0.51	0.22	0.30

Decision tree classification												
Max sensitivity criterion	0.80	0.10	0.97	0.31	0.52	0.17	0.78	0.08	0.97	0.28	0.49	0.14
Max specificity criterion	0.80	0.00	1.00	0.00	N/A	N/A	0.78	0.00	1.00	0.00	N/A	N/A
Max F1-score criterion	0.80	0.10	0.97	0.31	0.52	0.17	0.78	0.08	0.97	0.28	0.49	0.14
Max BCR criterion	0.80	0.10	0.97	0.31	0.52	0.17	0.78	0.08	0.97	0.28	0.49	0.14
Random forest classification												
Max sensitivity criterion	0.78	0.88	0.75	0.81	0.47	0.61	0.68	0.66	0.69	0.67	0.36	0.47
Max specificity criterion	0.81	0.08	0.99	0.29	0.74	0.15	0.79	0.07	0.98	0.27	0.66	0.13
Max F1-score criterion	0.73	0.72	0.73	0.73	0.40	0.52	0.70	0.64	0.71	0.68	0.37	0.47
Max BCR criterion	0.73	0.71	0.73	0.72	0.40	0.51	0.70	0.64	0.71	0.68	0.37	0.47

BCR: balanced classification rate