



SAPIENZA  
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MSc IN DATA SCIENCE

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EXTENDED VALIDATION

# Comparative assessment of disease gene prediction algorithms

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### Profound Mental Retardation

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	0.4 ± 0.89	0.4 ± 0.89	0.0 ± 0.0	0.0 ± 0.0	0.4 ± 0.89	0.4 ± 0.89	0.0 ± 0.0	19.2 ± 5.4
	R	0.71 ± 1.6	0.71 ± 1.6	0.0 ± 0.0	0.0 ± 0.0	0.62 ± 1.4	0.62 ± 1.4	0.0 ± 0.0	30.0 ± 8.44
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	23.41 ± 6.59
	nDCG	0.47 ± 1.04	0.47 ± 1.04	0.0 ± 0.0	0.0 ± 0.0	0.98 ± 2.19	0.98 ± 2.19	0.0 ± 0.0	18.64 ± 5.18
n/10	P	1.54 ± 3.44	1.54 ± 3.44	0.0 ± 0.0	0.0 ± 0.0	1.25 ± 2.8	1.25 ± 2.8	0.0 ± 0.0	22.5 ± 9.48
	R	0.71 ± 1.6	0.71 ± 1.6	0.0 ± 0.0	0.0 ± 0.0	0.62 ± 1.4	0.62 ± 1.4	0.0 ± 0.0	11.25 ± 4.74
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	15.0 ± 6.32
	nDCG	1.12 ± 2.51	1.12 ± 2.51	0.0 ± 0.0	0.0 ± 0.0	2.07 ± 4.62	2.07 ± 4.62	0.0 ± 0.0	20.48 ± 6.62
n/4	P	0.59 ± 1.32	0.59 ± 1.32	0.0 ± 0.0	0.0 ± 0.0	0.5 ± 1.12	0.5 ± 1.12	0.0 ± 0.0	17.0 ± 6.94
	R	0.71 ± 1.6	0.71 ± 1.6	0.0 ± 0.0	0.0 ± 0.0	0.62 ± 1.4	0.62 ± 1.4	0.0 ± 0.0	21.25 ± 8.67
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	18.89 ± 7.71
	nDCG	0.61 ± 1.35	0.61 ± 1.35	0.0 ± 0.0	0.0 ± 0.0	1.14 ± 2.54	1.14 ± 2.54	0.0 ± 0.0	17.13 ± 5.35
n/2	P	0.58 ± 0.79	0.58 ± 0.79	0.0 ± 0.0	0.0 ± 0.0	0.25 ± 0.56	0.25 ± 0.56	0.0 ± 0.0	19.25 ± 2.74
	R	1.43 ± 1.96	1.46 ± 1.99	0.0 ± 0.0	0.0 ± 0.0	0.62 ± 1.4	0.62 ± 1.4	0.0 ± 0.0	48.12 ± 6.85
	F1	2.06 ± 0.0	2.07 ± 0.02	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	27.5 ± 3.91
	nDCG	0.59 ± 0.85	0.58 ± 0.85	0.0 ± 0.0	0.0 ± 0.0	0.71 ± 1.58	0.71 ± 1.58	0.0 ± 0.0	18.81 ± 3.51
n	P	0.86 ± 0.32	0.72 ± 0.51	0.14 ± 0.32	0.0 ± 0.0	0.13 ± 0.28	0.13 ± 0.28	0.0 ± 0.0	12.75 ± 1.44
	R	4.31 ± 1.58	3.6 ± 2.53	0.74 ± 1.66	0.0 ± 0.0	0.62 ± 1.4	0.62 ± 1.4	0.0 ± 0.0	63.75 ± 7.19
	F1	1.44 ± 0.53	1.5 ± 0.6	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	21.25 ± 2.4
	nDCG	0.81 ± 0.49	0.7 ± 0.61	0.12 ± 0.26	0.0 ± 0.0	0.43 ± 0.96	0.43 ± 0.96	0.0 ± 0.0	13.99 ± 2.28

### Myocardial Failure

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	1.2 ± 1.79	1.2 ± 1.79	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	6.4 ± 8.88	19.6 ± 4.34
	R	2.73 ± 4.07	2.73 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	13.66 ± 19.03	41.16 ± 8.91
	F1	4.17 ± 1.96	4.17 ± 1.96	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	21.79 ± 4.06	26.55 ± 5.83
	nDCG	1.62 ± 2.71	1.9 ± 3.31	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	7.93 ± 10.97	18.6 ± 2.23
n/10	P	1.82 ± 4.07	3.64 ± 8.13	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	10.91 ± 16.26	10.91 ± 7.61
	R	0.91 ± 2.03	1.82 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	5.07 ± 7.5	5.07 ± 3.58
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	17.31 ± 7.84	8.66 ± 3.4
	nDCG	2.62 ± 5.85	4.09 ± 9.15	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	12.05 ± 19.6	12.15 ± 10.1
n/4	P	1.48 ± 2.03	2.22 ± 3.31	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	8.97 ± 12.34	18.62 ± 6.26
	R	1.82 ± 2.49	2.73 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	11.09 ± 15.3	22.72 ± 7.67
	F1	4.08 ± 0.0	6.12 ± 2.89	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	24.78 ± 3.03	20.46 ± 6.89
	nDCG	2.04 ± 3.22	2.86 ± 5.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	10.19 ± 14.26	17.54 ± 3.85
n/2	P	1.09 ± 1.63	1.09 ± 1.63	0.0 ± 0.0	0.0 ± 0.0	0.34 ± 0.76	0.34 ± 0.76	6.44 ± 8.84	19.32 ± 3.3
	R	2.73 ± 4.07	2.73 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	0.83 ± 1.86	0.83 ± 1.86	16.2 ± 22.28	47.93 ± 8.34
	F1	3.9 ± 1.84	3.9 ± 1.84	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	23.04 ± 1.91	27.54 ± 4.73
	nDCG	1.52 ± 2.54	1.78 ± 3.11	0.0 ± 0.0	0.0 ± 0.0	0.24 ± 0.53	0.24 ± 0.54	7.79 ± 10.82	18.52 ± 1.95
n	P	0.91 ± 0.91	1.09 ± 1.19	0.55 ± 0.5	0.18 ± 0.41	0.34 ± 0.47	0.34 ± 0.47	5.04 ± 6.93	13.28 ± 1.1
	R	4.55 ± 4.55	5.45 ± 5.93	2.73 ± 2.49	0.91 ± 2.03	1.67 ± 2.28	1.67 ± 2.28	25.58 ± 35.25	66.41 ± 5.69
	F1	2.53 ± 0.87	3.03 ± 1.52	1.52 ± 0.0	0.0 ± 0.0	1.41 ± 0.01	1.42 ± 0.01	21.06 ± 2.09	22.13 ± 1.83
	nDCG	1.22 ± 1.48	1.52 ± 2.11	0.42 ± 0.38	0.13 ± 0.3	0.28 ± 0.38	0.28 ± 0.39	6.23 ± 8.58	14.28 ± 1.8

### Drug-Induced Liver Disease

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	$2.0 \pm 2.83$	$2.0 \pm 2.83$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.8 \pm 7.16$	$21.2 \pm 4.6$
	R	$1.24 \pm 1.75$	$1.24 \pm 1.75$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.23 \pm 3.32$	$9.87 \pm 2.16$
	F1	$3.83 \pm 1.06$	$3.83 \pm 1.06$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$7.61 \pm 3.56$	$13.47 \pm 2.94$
	nDCG	$1.68 \pm 2.42$	$1.66 \pm 2.39$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.48 \pm 6.32$	$19.39 \pm 5.25$
n/10	P	$2.5 \pm 3.54$	$2.5 \pm 3.54$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.53 \pm 6.75$	$20.75 \pm 4.22$
	R	$1.24 \pm 1.75$	$1.24 \pm 1.75$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.23 \pm 3.32$	$10.24 \pm 2.09$
	F1	$4.15 \pm 1.15$	$4.15 \pm 1.15$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$7.47 \pm 3.49$	$13.72 \pm 2.79$
	nDCG	$1.95 \pm 2.82$	$1.93 \pm 2.78$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.31 \pm 6.07$	$19.16 \pm 4.88$
n/4	P	$3.37 \pm 0.54$	$3.37 \pm 0.54$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.15 \pm 0.33$	$0.15 \pm 0.33$	$6.72 \pm 10.01$	$20.3 \pm 2.86$
	R	$4.21 \pm 0.67$	$4.21 \pm 0.67$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.19 \pm 0.41$	$0.19 \pm 0.41$	$8.36 \pm 12.44$	$25.33 \pm 3.58$
	F1	$3.74 \pm 0.6$	$3.74 \pm 0.6$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$18.62 \pm 8.73$	$22.54 \pm 3.18$
	nDCG	$2.89 \pm 0.34$	$2.88 \pm 0.33$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.11 \pm 0.25$	$0.11 \pm 0.25$	$6.19 \pm 9.01$	$19.58 \pm 3.51$
n/2	P	$2.08 \pm 0.54$	$2.08 \pm 0.54$	$0.2 \pm 0.27$	$0.0 \pm 0.0$	$0.22 \pm 0.5$	$0.22 \pm 0.5$	$7.76 \pm 10.5$	$19.7 \pm 2.35$
	R	$5.19 \pm 1.34$	$5.19 \pm 1.34$	$0.49 \pm 0.68$	$0.0 \pm 0.0$	$0.56 \pm 1.24$	$0.56 \pm 1.24$	$19.34 \pm 26.15$	$49.17 \pm 5.94$
	F1	$2.97 \pm 0.77$	$2.97 \pm 0.77$	$0.71 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$18.46 \pm 15.64$	$28.13 \pm 3.37$
	nDCG	$2.06 \pm 0.42$	$2.06 \pm 0.41$	$0.16 \pm 0.22$	$0.0 \pm 0.0$	$0.19 \pm 0.42$	$0.19 \pm 0.43$	$7.27 \pm 9.87$	$19.42 \pm 2.8$
n	P	$1.19 \pm 0.32$	$1.19 \pm 0.32$	$0.5 \pm 0.18$	$0.45 \pm 0.21$	$0.19 \pm 0.27$	$0.19 \pm 0.27$	$4.06 \pm 5.33$	$10.24 \pm 1.16$
	R	$5.94 \pm 1.59$	$5.94 \pm 1.59$	$2.47 \pm 0.87$	$2.23 \pm 1.03$	$0.93 \pm 1.31$	$0.93 \pm 1.31$	$20.27 \pm 26.61$	$51.22 \pm 5.9$
	F1	$1.98 \pm 0.54$	$1.98 \pm 0.54$	$0.82 \pm 0.29$	$0.74 \pm 0.35$	$0.78 \pm 0.22$	$0.78 \pm 0.22$	$8.46 \pm 9.28$	$17.07 \pm 1.94$
	nDCG	$1.33 \pm 0.33$	$1.33 \pm 0.32$	$0.42 \pm 0.16$	$0.36 \pm 0.17$	$0.17 \pm 0.25$	$0.17 \pm 0.25$	$4.39 \pm 5.82$	$11.65 \pm 1.61$

### Autism Spectrum Disorders

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	$1.6 \pm 1.67$	$2.0 \pm 1.41$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$5.2 \pm 3.35$	$5.2 \pm 3.35$	$4.4 \pm 8.76$	$18.0 \pm 8.25$
	R	$4.71 \pm 4.92$	$5.88 \pm 4.16$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.21 \pm 0.78$	$1.21 \pm 0.78$	$1.03 \pm 2.05$	$4.2 \pm 1.93$
	F1	$3.98 \pm 1.72$	$3.73 \pm 1.49$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.46 \pm 0.73$	$2.46 \pm 0.73$	$4.17 \pm 4.82$	$6.81 \pm 3.12$
	nDCG	$1.96 \pm 2.02$	$2.45 \pm 1.7$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$6.53 \pm 4.91$	$6.53 \pm 4.91$	$4.2 \pm 8.39$	$17.39 \pm 7.62$
n/10	P	$5.0 \pm 6.85$	$7.5 \pm 6.85$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.8 \pm 1.75$	$2.8 \pm 1.75$	$2.62 \pm 4.35$	$12.52 \pm 4.21$
	R	$2.35 \pm 3.22$	$3.53 \pm 3.22$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.4 \pm 0.87$	$1.4 \pm 0.87$	$1.31 \pm 2.18$	$6.26 \pm 2.11$
	F1	$8.0 \pm 0.0$	$8.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.33 \pm 0.6$	$2.33 \pm 0.6$	$2.91 \pm 3.43$	$8.34 \pm 2.81$
	nDCG	$4.33 \pm 6.07$	$5.93 \pm 5.68$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.12 \pm 2.93$	$4.12 \pm 2.93$	$2.91 \pm 5.1$	$13.5 \pm 4.4$
n/4	P	$1.9 \pm 2.61$	$2.86 \pm 2.61$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.87 \pm 0.75$	$1.87 \pm 0.75$	$2.62 \pm 3.01$	$6.29 \pm 1.66$
	R	$2.35 \pm 3.22$	$3.53 \pm 3.22$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.34 \pm 0.94$	$2.34 \pm 0.94$	$3.27 \pm 3.75$	$7.84 \pm 2.08$
	F1	$5.26 \pm 0.0$	$5.26 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.08 \pm 0.83$	$2.08 \pm 0.83$	$2.91 \pm 3.34$	$6.98 \pm 1.85$
	nDCG	$2.36 \pm 3.3$	$3.23 \pm 3.09$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.73 \pm 1.46$	$2.73 \pm 1.46$	$2.77 \pm 3.63$	$7.89 \pm 2.07$
n/2	P	$1.9 \pm 1.99$	$2.38 \pm 1.68$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.79 \pm 0.92$	$1.79 \pm 0.92$	$2.06 \pm 1.52$	$4.15 \pm 1.02$
	R	$4.71 \pm 4.92$	$5.88 \pm 4.16$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$4.48 \pm 2.31$	$4.48 \pm 2.31$	$5.14 \pm 3.8$	$10.37 \pm 2.55$
	F1	$4.52 \pm 1.96$	$4.24 \pm 1.69$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.56 \pm 1.32$	$2.56 \pm 1.32$	$2.94 \pm 2.17$	$5.93 \pm 1.46$
	nDCG	$2.2 \pm 2.28$	$2.75 \pm 1.92$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.3 \pm 1.27$	$2.3 \pm 1.27$	$2.23 \pm 2.12$	$5.43 \pm 1.33$
n	P	$0.94 \pm 0.98$	$1.18 \pm 0.83$	$0.47 \pm 0.64$	$0.47 \pm 0.64$	$1.4 \pm 0.52$	$1.4 \pm 0.52$	$1.7 \pm 0.96$	$2.91 \pm 0.45$
	R	$4.71 \pm 4.92$	$5.88 \pm 4.16$	$2.35 \pm 3.22$	$2.35 \pm 3.22$	$7.0 \pm 2.61$	$7.0 \pm 2.61$	$8.5 \pm 4.82$	$14.57 \pm 2.28$
	F1	$2.61 \pm 1.13$	$2.45 \pm 0.98$	$1.96 \pm 0.0$	$1.96 \pm 0.0$	$2.34 \pm 0.87$	$2.34 \pm 0.87$	$2.83 \pm 1.6$	$4.86 \pm 0.76$
	nDCG	$1.35 \pm 1.4$	$1.69 \pm 1.18$	$0.36 \pm 0.49$	$0.35 \pm 0.47$	$1.75 \pm 0.65$	$1.75 \pm 0.65$	$1.85 \pm 1.39$	$3.82 \pm 0.75$

### Intellectual Disability

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	1.2 ± 1.1	1.2 ± 1.1	1.2 ± 1.1	0.0 ± 0.0	4.8 ± 3.35	4.8 ± 3.03	4.0 ± 3.74	18.4 ± 7.54
	R	0.67 ± 0.61	0.67 ± 0.61	0.67 ± 0.61	0.0 ± 0.0	0.55 ± 0.39	0.55 ± 0.35	0.46 ± 0.43	2.12 ± 0.87
	F1	1.44 ± 0.01	1.44 ± 0.01	1.44 ± 0.01	0.0 ± 0.0	1.24 ± 0.48	0.99 ± 0.63	1.38 ± 0.24	3.81 ± 1.56
	nDCG	1.4 ± 1.34	1.4 ± 1.34	0.91 ± 0.84	0.0 ± 0.0	5.56 ± 4.63	5.53 ± 4.38	4.16 ± 3.88	19.37 ± 8.96
n/10	P	1.36 ± 1.24	1.36 ± 1.24	1.36 ± 1.24	0.0 ± 0.0	4.91 ± 0.84	5.0 ± 0.76	2.13 ± 1.07	19.54 ± 2.39
	R	0.67 ± 0.61	0.67 ± 0.61	0.67 ± 0.61	0.0 ± 0.0	2.45 ± 0.42	2.49 ± 0.38	1.06 ± 0.53	9.75 ± 1.19
	F1	1.5 ± 0.01	1.5 ± 0.01	1.5 ± 0.01	0.0 ± 0.0	3.27 ± 0.56	3.33 ± 0.51	1.42 ± 0.71	13.0 ± 1.59
	nDCG	1.53 ± 1.47	1.53 ± 1.47	1.0 ± 0.91	0.0 ± 0.0	5.12 ± 1.6	5.16 ± 1.51	2.46 ± 1.37	19.68 ± 3.43
n/4	P	1.8 ± 1.42	1.8 ± 1.42	0.54 ± 0.49	0.0 ± 0.0	2.96 ± 0.65	2.88 ± 0.66	2.07 ± 0.63	14.05 ± 1.68
	R	2.24 ± 1.76	2.24 ± 1.76	0.67 ± 0.61	0.0 ± 0.0	3.7 ± 0.82	3.6 ± 0.83	2.59 ± 0.79	17.55 ± 2.1
	F1	2.5 ± 1.28	2.5 ± 1.28	1.0 ± 0.0	0.0 ± 0.0	3.29 ± 0.73	3.2 ± 0.73	2.3 ± 0.7	15.61 ± 1.87
	nDCG	1.78 ± 1.26	1.78 ± 1.18	0.52 ± 0.48	0.0 ± 0.0	3.38 ± 0.79	3.3 ± 0.84	2.23 ± 0.87	15.11 ± 2.2
n/2	P	2.15 ± 0.86	2.15 ± 0.86	0.54 ± 0.2	0.0 ± 0.0	2.66 ± 0.22	2.66 ± 0.22	2.31 ± 0.43	8.67 ± 0.79
	R	5.38 ± 2.18	5.38 ± 2.18	1.34 ± 0.49	0.0 ± 0.0	6.65 ± 0.55	6.65 ± 0.55	5.77 ± 1.07	21.66 ± 1.97
	F1	3.07 ± 1.24	3.07 ± 1.24	0.77 ± 0.29	0.0 ± 0.0	3.8 ± 0.32	3.8 ± 0.32	3.3 ± 0.61	12.38 ± 1.13
	nDCG	2.09 ± 0.71	2.09 ± 0.71	0.52 ± 0.12	0.0 ± 0.0	2.95 ± 0.47	2.94 ± 0.47	2.37 ± 0.59	10.05 ± 1.24
n	P	1.48 ± 0.56	1.48 ± 0.56	0.58 ± 0.3	0.27 ± 0.19	2.6 ± 0.21	2.61 ± 0.2	2.37 ± 0.44	5.86 ± 0.46
	R	7.39 ± 2.84	7.39 ± 2.84	2.91 ± 1.5	1.35 ± 0.94	12.89 ± 1.03	12.93 ± 0.99	11.87 ± 2.19	29.28 ± 2.32
	F1	2.46 ± 0.94	2.46 ± 0.94	0.97 ± 0.5	0.56 ± 0.22	4.33 ± 0.35	4.34 ± 0.34	3.96 ± 0.73	9.76 ± 0.77
	nDCG	1.56 ± 0.57	1.56 ± 0.57	0.57 ± 0.26	0.21 ± 0.15	2.77 ± 0.33	2.77 ± 0.33	2.39 ± 0.53	6.99 ± 0.73

### Diffuse Large B-Cell Lymphoma

@	Eval Metric	Diamond	Diabie	Cytoscape	RWR	Diamond Ex	Diabie Ex	CytoscapeEx	RWR Ex
50	P	0.4 ± 0.89	0.4 ± 0.89	0.0 ± 0.0	0.0 ± 0.0	8.8 ± 3.35	8.8 ± 3.35	2.8 ± 1.79	15.6 ± 8.29
	R	1.82 ± 4.07	1.82 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	2.11 ± 0.8	2.11 ± 0.8	0.67 ± 0.43	3.74 ± 1.98
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	3.4 ± 1.29	3.4 ± 1.29	1.08 ± 0.69	6.03 ± 3.2
	nDCG	0.33 ± 0.75	0.34 ± 0.77	0.0 ± 0.0	0.0 ± 0.0	9.96 ± 4.4	9.96 ± 4.4	2.69 ± 1.53	16.41 ± 9.43
n/10	P	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	6.15 ± 1.29	5.96 ± 1.05	2.69 ± 2.39	10.77 ± 4.58
	R	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	3.07 ± 0.64	2.97 ± 0.52	1.34 ± 1.2	5.37 ± 2.28
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	4.09 ± 0.86	3.97 ± 0.7	1.79 ± 1.6	7.16 ± 3.04
	nDCG	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	7.44 ± 2.48	7.31 ± 2.46	2.66 ± 1.8	12.34 ± 5.65
n/4	P	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	4.85 ± 1.0	4.92 ± 1.03	2.15 ± 1.4	7.69 ± 1.96
	R	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	6.04 ± 1.25	6.14 ± 1.29	2.69 ± 1.76	9.59 ± 2.43
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	5.38 ± 1.11	5.46 ± 1.15	2.39 ± 1.56	8.53 ± 2.17
	nDCG	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	5.77 ± 1.4	5.83 ± 1.4	2.23 ± 1.23	9.07 ± 2.92
n/2	P	0.74 ± 1.66	0.74 ± 1.66	0.0 ± 0.0	0.0 ± 0.0	3.38 ± 0.69	3.42 ± 0.63	1.69 ± 0.66	5.53 ± 1.1
	R	1.82 ± 4.07	1.82 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	8.44 ± 1.72	8.54 ± 1.58	4.22 ± 1.64	13.8 ± 2.72
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	4.82 ± 0.98	4.88 ± 0.9	2.41 ± 0.94	7.89 ± 1.56
	nDCG	0.5 ± 1.13	0.52 ± 1.16	0.0 ± 0.0	0.0 ± 0.0	4.18 ± 1.0	4.22 ± 0.96	1.81 ± 0.67	6.68 ± 1.72
n	P	0.36 ± 0.81	0.36 ± 0.81	0.0 ± 0.0	0.0 ± 0.0	2.5 ± 0.54	2.52 ± 0.56	1.57 ± 0.5	4.08 ± 0.59
	R	1.82 ± 4.07	1.82 ± 4.07	0.0 ± 0.0	0.0 ± 0.0	12.47 ± 2.7	12.56 ± 2.78	7.87 ± 2.5	20.42 ± 2.89
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	4.16 ± 0.9	4.19 ± 0.93	2.62 ± 0.83	6.81 ± 0.97
	nDCG	0.31 ± 0.7	0.32 ± 0.72	0.0 ± 0.0	0.0 ± 0.0	3.08 ± 0.73	3.11 ± 0.75	1.66 ± 0.53	4.97 ± 0.91

### Gastrointestinal Stromal Tumors

@	Eval Metric	Diamond	Diablo	Cytoscape	RWR	Diamond Ex	Diablo Ex	CytoscapeEx	RWR Ex
50	P	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.0 \pm 0.0$	$1.2 \pm 2.68$	$2.4 \pm 5.37$	$0.4 \pm 0.89$	$15.2 \pm 5.22$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.56 \pm 1.24$	$1.11 \pm 2.48$	$0.19 \pm 0.41$	$7.07 \pm 2.45$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$9.65 \pm 3.33$
	nDCG	$0.43 \pm 0.97$	$0.43 \pm 0.97$	$0.28 \pm 0.63$	$0.0 \pm 0.0$	$1.23 \pm 2.75$	$1.85 \pm 4.15$	$0.27 \pm 0.61$	$17.49 \pm 7.18$
n/10	P	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.13 \pm 2.53$	$2.26 \pm 5.06$	$0.38 \pm 0.84$	$15.09 \pm 4.42$
	R	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.56 \pm 1.24$	$1.11 \pm 2.48$	$0.19 \pm 0.41$	$7.44 \pm 2.21$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$9.97 \pm 2.95$
	nDCG	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.18 \pm 2.65$	$1.78 \pm 3.98$	$0.26 \pm 0.59$	$17.33 \pm 6.59$
n/4	P	$1.67 \pm 3.73$	$1.67 \pm 3.73$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.04 \pm 1.95$	$1.64 \pm 3.27$	$1.04 \pm 0.85$	$6.87 \pm 1.78$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.3 \pm 2.41$	$2.04 \pm 4.06$	$1.3 \pm 1.06$	$8.55 \pm 2.25$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.89 \pm 2.92$	$4.55 \pm 5.26$	$1.45 \pm 0.8$	$7.62 \pm 1.99$
	nDCG	$1.1 \pm 2.45$	$1.1 \pm 2.45$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.08 \pm 2.12$	$1.53 \pm 3.1$	$0.84 \pm 0.66$	$9.7 \pm 3.46$
n/2	P	$0.8 \pm 1.79$	$0.8 \pm 1.79$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.04 \pm 1.92$	$1.04 \pm 1.92$	$0.97 \pm 0.77$	$4.01 \pm 0.96$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.59 \pm 4.78$	$2.59 \pm 4.78$	$2.42 \pm 1.94$	$10.04 \pm 2.45$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.48 \pm 3.37$	$2.48 \pm 3.37$	$1.38 \pm 1.1$	$5.74 \pm 1.38$
	nDCG	$0.69 \pm 1.53$	$0.69 \pm 1.53$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.08 \pm 2.06$	$1.09 \pm 2.07$	$0.85 \pm 0.66$	$6.25 \pm 2.05$
n	P	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.0 \pm 0.0$	$0.97 \pm 1.03$	$0.89 \pm 0.87$	$0.89 \pm 0.33$	$2.64 \pm 0.55$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$4.83 \pm 5.13$	$4.45 \pm 4.31$	$4.47 \pm 1.68$	$13.2 \pm 2.76$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.61 \pm 1.72$	$1.49 \pm 1.44$	$1.49 \pm 0.56$	$4.4 \pm 0.91$
	nDCG	$0.43 \pm 0.97$	$0.43 \pm 0.97$	$0.28 \pm 0.63$	$0.0 \pm 0.0$	$1.0 \pm 1.25$	$0.94 \pm 1.13$	$0.84 \pm 0.31$	$4.17 \pm 1.15$

### Liver Dysfunction

@	Eval Metric	Diamond	Diablo	Cytoscape	RWR	Diamond Ex	Diablo Ex	CytoscapeEx	RWR Ex
50	P	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.0 \pm 0.0$	$1.2 \pm 2.68$	$2.4 \pm 5.37$	$0.4 \pm 0.89$	$15.2 \pm 5.22$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.56 \pm 1.24$	$1.11 \pm 2.48$	$0.19 \pm 0.41$	$7.07 \pm 2.45$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$9.65 \pm 3.33$
	nDCG	$0.43 \pm 0.97$	$0.43 \pm 0.97$	$0.28 \pm 0.63$	$0.0 \pm 0.0$	$1.23 \pm 2.75$	$1.85 \pm 4.15$	$0.27 \pm 0.61$	$17.49 \pm 7.18$
n/10	P	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.13 \pm 2.53$	$2.26 \pm 5.06$	$0.38 \pm 0.84$	$15.09 \pm 4.42$
	R	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.56 \pm 1.24$	$1.11 \pm 2.48$	$0.19 \pm 0.41$	$7.44 \pm 2.21$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$9.97 \pm 2.95$
	nDCG	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.18 \pm 2.65$	$1.78 \pm 3.98$	$0.26 \pm 0.59$	$17.33 \pm 6.59$
n/4	P	$1.67 \pm 3.73$	$1.67 \pm 3.73$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.04 \pm 1.95$	$1.64 \pm 3.27$	$1.04 \pm 0.85$	$6.87 \pm 1.78$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.3 \pm 2.41$	$2.04 \pm 4.06$	$1.3 \pm 1.06$	$8.55 \pm 2.25$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.89 \pm 2.92$	$4.55 \pm 5.26$	$1.45 \pm 0.8$	$7.62 \pm 1.99$
	nDCG	$1.1 \pm 2.45$	$1.1 \pm 2.45$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.08 \pm 2.12$	$1.53 \pm 3.1$	$0.84 \pm 0.66$	$9.7 \pm 3.46$
n/2	P	$0.8 \pm 1.79$	$0.8 \pm 1.79$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.04 \pm 1.92$	$1.04 \pm 1.92$	$0.97 \pm 0.77$	$4.01 \pm 0.96$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.59 \pm 4.78$	$2.59 \pm 4.78$	$2.42 \pm 1.94$	$10.04 \pm 2.45$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$2.48 \pm 3.37$	$2.48 \pm 3.37$	$1.38 \pm 1.1$	$5.74 \pm 1.38$
	nDCG	$0.69 \pm 1.53$	$0.69 \pm 1.53$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.08 \pm 2.06$	$1.09 \pm 2.07$	$0.85 \pm 0.66$	$6.25 \pm 2.05$
n	P	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.4 \pm 0.89$	$0.0 \pm 0.0$	$0.97 \pm 1.03$	$0.89 \pm 0.87$	$0.89 \pm 0.33$	$2.64 \pm 0.55$
	R	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$2.0 \pm 4.47$	$0.0 \pm 0.0$	$4.83 \pm 5.13$	$4.45 \pm 4.31$	$4.47 \pm 1.68$	$13.2 \pm 2.76$
	F1	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$1.61 \pm 1.72$	$1.49 \pm 1.44$	$1.49 \pm 0.56$	$4.4 \pm 0.91$
	nDCG	$0.43 \pm 0.97$	$0.43 \pm 0.97$	$0.28 \pm 0.63$	$0.0 \pm 0.0$	$1.0 \pm 1.25$	$0.94 \pm 1.13$	$0.84 \pm 0.31$	$4.17 \pm 1.15$

### Carcinoma, Granular Cell

@	Eval Metric	Diamond	Diable	Cytoscape	RWR	Diamond Ex	Diable Ex	CytoscapeEx	RWR Ex
50	P	$4.0 \pm 2.45$	$3.6 \pm 1.67$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	R	$8.66 \pm 5.36$	$7.79 \pm 3.68$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	F1	$5.47 \pm 3.36$	$4.92 \pm 2.3$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n/10	nDCG	$3.73 \pm 2.38$	$3.41 \pm 1.68$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	P	$3.64 \pm 4.98$	$3.64 \pm 4.98$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	R	$1.7 \pm 2.33$	$1.7 \pm 2.33$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n/4	F1	$5.8 \pm 0.12$	$5.8 \pm 0.12$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	nDCG	$3.08 \pm 4.23$	$3.08 \pm 4.23$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	P	$4.83 \pm 3.08$	$4.14 \pm 1.54$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n/2	R	$6.05 \pm 3.91$	$5.18 \pm 1.97$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	F1	$5.37 \pm 3.45$	$4.6 \pm 1.73$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	nDCG	$4.15 \pm 2.92$	$3.67 \pm 1.88$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n	P	$3.45 \pm 2.11$	$3.1 \pm 1.44$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	R	$8.66 \pm 5.36$	$7.79 \pm 3.68$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	F1	$4.93 \pm 3.03$	$4.44 \pm 2.07$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n	nDCG	$3.37 \pm 2.15$	$3.08 \pm 1.52$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	P	$2.93 \pm 1.31$	$2.93 \pm 1.31$	$0.0 \pm 0.0$	$0.52 \pm 0.77$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	R	$14.67 \pm 6.63$	$14.67 \pm 6.63$	$0.0 \pm 0.0$	$2.61 \pm 3.89$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
n	F1	$4.89 \pm 2.18$	$4.89 \pm 2.18$	$0.0 \pm 0.0$	$2.16 \pm 1.02$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$
	nDCG	$3.0 \pm 1.54$	$2.98 \pm 1.44$	$0.0 \pm 0.0$	$0.39 \pm 0.58$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$

### HIV Coinfection

@	Eval Metric	Diamond	Diable	Cytoscape	RWR	Diamond Ex	Diable Ex	CytoscapeEx	RWR Ex
50	P	$6.0 \pm 4.69$	$6.0 \pm 4.69$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$19.6 \pm 6.07$
	R	$14.43 \pm 11.07$	$14.43 \pm 11.07$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$38.15 \pm 12.66$
	F1	$8.47 \pm 6.59$	$8.47 \pm 6.59$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$25.89 \pm 8.21$
n/10	nDCG	$6.01 \pm 4.48$	$6.01 \pm 4.48$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$20.56 \pm 8.53$
	P	$8.0 \pm 8.37$	$8.0 \pm 8.37$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$16.67 \pm 16.67$
	R	$3.86 \pm 4.0$	$3.86 \pm 4.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$7.78 \pm 7.75$
n/4	F1	$8.67 \pm 3.66$	$8.67 \pm 3.66$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$13.26 \pm 10.12$
	nDCG	$6.76 \pm 8.37$	$6.76 \pm 8.37$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$20.7 \pm 18.46$
	P	$6.4 \pm 3.58$	$6.4 \pm 3.58$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$19.38 \pm 5.59$
n/2	R	$7.71 \pm 4.18$	$7.71 \pm 4.18$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$24.09 \pm 7.2$
	F1	$7.0 \pm 3.86$	$7.0 \pm 3.86$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$21.48 \pm 6.29$
	nDCG	$6.16 \pm 4.2$	$6.16 \pm 4.2$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$20.72 \pm 9.86$
n	P	$5.88 \pm 4.6$	$5.88 \pm 4.6$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$19.06 \pm 5.34$
	R	$14.43 \pm 11.07$	$14.43 \pm 11.07$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$47.48 \pm 14.34$
	F1	$8.36 \pm 6.5$	$8.36 \pm 6.5$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$27.2 \pm 7.79$
n	nDCG	$5.92 \pm 4.42$	$5.92 \pm 4.42$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$20.04 \pm 7.31$
	P	$3.69 \pm 2.42$	$3.69 \pm 2.42$	$0.19 \pm 0.43$	$0.19 \pm 0.43$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$12.4 \pm 1.98$
	R	$18.33 \pm 11.72$	$18.33 \pm 11.72$	$0.95 \pm 2.13$	$0.95 \pm 2.13$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$62.12 \pm 10.71$
n	F1	$6.14 \pm 4.01$	$6.14 \pm 4.01$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$20.68 \pm 3.34$
	nDCG	$4.22 \pm 2.85$	$4.22 \pm 2.85$	$0.15 \pm 0.34$	$0.14 \pm 0.32$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$0.0 \pm 0.0$	$14.6 \pm 3.04$

### Prescription Drug Abuse

@	Eval Metric	Diamond	Diablo	Cytoscape	RWR	Diamond Ex	Diablo Ex	CytoscapeEx	RWR Ex
50	P	0.4 ± 0.89	0.4 ± 0.89	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	R	0.87 ± 1.94	0.87 ± 1.94	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	nDCG	0.3 ± 0.66	0.3 ± 0.66	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
n/10	P	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	R	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	nDCG	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
n/4	P	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	R	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	nDCG	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
n/2	P	0.35 ± 0.78	0.35 ± 0.78	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	R	0.87 ± 1.94	0.87 ± 1.94	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	nDCG	0.27 ± 0.6	0.27 ± 0.6	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
n	P	0.17 ± 0.39	0.17 ± 0.39	0.17 ± 0.39	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	R	0.87 ± 1.94	0.87 ± 1.94	0.87 ± 1.94	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	F1	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
	nDCG	0.16 ± 0.37	0.16 ± 0.37	0.13 ± 0.29	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0

<i>Disease</i>	<i>Precision</i>	<i>Recall</i>	<i>F1 score</i>
<b>Autism Spectrum Disorders</b>	1.23	0.13	0.24
<b>Intellectual Disability</b>	7.17	0.77	1.39
<b>Drug-Induced Liver Disease</b>	7.55	0.81	1.46
<b>Profound Mental Retardation</b>	2.42	0.26	0.47
<b>Myocardial Failure</b>	0.33	0.04	0.06
<b>Gastrointestinal Stromal Tumors</b>	0.14	0.02	0.03
<b>Liver Dysfunction</b>	0	0	-
<b>Diffuse Large B-Cell Lymphoma</b>	1.19	0.13	0.23
<b>Carcinoma, Granular Cell</b>	0.47	0.05	0.09
<b>HIV Coinfection</b>	2.52	0.27	0.49
<b>Prescription Drug Abuse</b>	0.14	0.02	0.03

Table 1: Final Results overview of Markov Clustering Algorithm.