Output tables for the test of Multiple comparisons.

June 23, 2019

1 Average rankings of Friedman test

Average ranks obtained by applying the Friedman procedure

Algorithm	Ranking
DSC-R	2.0385
DSC-S	2.0769
KMeanClustering	5.5
LearnppCDS	3.3077
LearnppNIE	5.6538
REA	3.5
OUSE	6.1538
MLPClassifier	7.7692

Table 1: Average Rankings of the algorithms

Friedman statistic considering reduction performance (distributed according to chi-square with 7 degrees of freedom: 130.461538.

P-value computed by Friedman Test: 8.7735374521003E-11.

2 Post hoc comparisons

Results achieved on post hoc comparisons for $\alpha = 0.05$, $\alpha = 0.10$ and adjusted p-values.

2.1 P-values for $\alpha = 0.05$

i	algorithms	$z = (R_0 - R_i)/SE$	p
28	DSC-R vs. MLPClassifier	8.435464	0
27	DSC-S vs. MLPClassifier	8.37885	0
26	LearnppCDS vs. MLPClassifier	6.567207	0
25	REA vs. MLPClassifier	6.284138	0
24	DSC-R vs. OUSE	6.057682	0
23	DSC-S vs. OUSE	6.001068	0
22	DSC-R vs. LearnppNIE	5.321702	0
21	DSC-S vs. LearnppNIE	5.265088	0
20	DSC-R vs. KMeanClustering	5.095247	0
19	DSC-S vs. KMeanClustering	5.038633	0
18	LearnppCDS vs. OUSE	4.189425	0.000028
17	REA vs. OUSE	3.906356	0.000094
16	LearnppCDS vs. LearnppNIE	3.453445	0.000553
15	KMeanClustering vs. MLPClassifier	3.340217	0.000837
14	KMeanClustering vs. LearnppCDS	3.22699	0.001251
13	LearnppNIE vs. REA	3.170376	0.001522
12	LearnppNIE vs. MLPClassifier	3.113762	0.001847
11	KMeanClustering vs. REA	2.94392	0.003241
10	OUSE vs. MLPClassifier	2.377782	0.017417
9	DSC-R vs. REA	2.151326	0.03145
8	DSC-S vs. REA	2.094713	0.036197
7	DSC-R vs. LearnppCDS	1.868257	0.061726
6	DSC-S vs. LearnppCDS	1.811643	0.070041
5	KMeanClustering vs. OUSE	0.962435	0.335831
4	LearnppNIE vs. OUSE	0.73598	0.461743
3	LearnppCDS vs. REA	0.283069	0.777124
2	KMeanClustering vs. LearnppNIE	0.226455	0.820847
1	DSC-R vs. DSC-S	0.056614	0.954853

Table 2: P-values Table for $\alpha = 0.05$

Nemenyi's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.001786.

2.2 P-values for $\alpha = 0.10$

i	algorithms	$z = (R_0 - R_i)/SE$	p
28	DSC-R vs. MLPClassifier	8.435464	0
27	DSC-S vs. MLPClassifier	8.37885	0
26	LearnppCDS vs. MLPClassifier	6.567207	0
25	REA vs. MLPClassifier	6.284138	0
24	DSC-R vs. OUSE	6.057682	0
23	DSC-S vs. OUSE	6.001068	0
22	DSC-R vs. LearnppNIE	5.321702	0
21	DSC-S vs. LearnppNIE	5.265088	0
20	DSC-R vs. KMeanClustering	5.095247	0
19	DSC-S vs. KMeanClustering	5.038633	0
18	LearnppCDS vs. OUSE	4.189425	0.000028
17	REA vs. OUSE	3.906356	0.000094
16	LearnppCDS vs. LearnppNIE	3.453445	0.000553
15	KMeanClustering vs. MLPClassifier	3.340217	0.000837
14	KMeanClustering vs. LearnppCDS	3.22699	0.001251
13	LearnppNIE vs. REA	3.170376	0.001522
12	LearnppNIE vs. MLPClassifier	3.113762	0.001847
11	KMeanClustering vs. REA	2.94392	0.003241
10	OUSE vs. MLPClassifier	2.377782	0.017417
9	DSC-R vs. REA	2.151326	0.03145
8	DSC-S vs. REA	2.094713	0.036197
7	DSC-R vs. LearnppCDS	1.868257	0.061726
6	DSC-S vs. LearnppCDS	1.811643	0.070041
5	KMeanClustering vs. OUSE	0.962435	0.335831
4	LearnppNIE vs. OUSE	0.73598	0.461743
3	LearnppCDS vs. REA	0.283069	0.777124
2	KMeanClustering vs. LearnppNIE	0.226455	0.820847
1	DSC-R vs. DSC-S	0.056614	0.954853

Table 3: P-values Table for $\alpha = 0.10$

Nemenyi's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.003571.

2.3 Adjusted p-values

i	hypothesis	unadjusted p	p_{Neme}
1	DSC-R vs .MLPClassifier	0	0
2	DSC-S vs .MLPClassifier	0	0
3	LearnppCDS vs .MLPClassifier	0	0
4	REA vs .MLPClassifier	0	0
5	DSC-R vs .OUSE	0	0
6	DSC-S vs .OUSE	0	0
7	DSC-R vs .LearnppNIE	0	0.000003
8	DSC-S vs .LearnppNIE	0	0.000004
9	DSC-R vs .KMeanClustering	0	0.00001
10	DSC-S vs .KMeanClustering	0	0.000013
11	LearnppCDS vs .OUSE	0.000028	0.000783
12	REA vs .OUSE	0.000094	0.002624
13	LearnppCDS vs .LearnppNIE	0.000553	0.015497
14	KMeanClustering vs .MLPClassifier	0.000837	0.02344
15	KMeanClustering vs .LearnppCDS	0.001251	0.035028
16	LearnppNIE vs .REA	0.001522	0.042628
17	LearnppNIE vs .MLPClassifier	0.001847	0.051721
18	KMeanClustering vs .REA	0.003241	0.090743
19	OUSE vs .MLPClassifier	0.017417	0.48768
20	DSC-R vs .REA	0.03145	0.880613
21	DSC-S vs .REA	0.036197	1.013504
22	DSC-R vs .LearnppCDS	0.061726	1.728335
23	DSC-S vs .LearnppCDS	0.070041	1.961157
24	KMeanClustering vs .OUSE	0.335831	9.403265
25	LearnppNIE vs .OUSE	0.461743	12.928799
26	LearnppCDS vs .REA	0.777124	21.759465
27	KMeanClustering vs .LearnppNIE	0.820847	22.983723
28	DSC-R vs .DSC-S	0.954853	26.735878

Table 4: Adjusted p-values