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	2.575
DSC-S	1.9333
KMeanClustering	6.1083
LearnppCDS	3.7167
LearnppNIE	4.8417
REA	2.9667
OUSE	6.325
MLPClassifier	7.5333

Table 1: Average Rankings of the algorithms

Friedman statistic considering reduction performance (distributed according to chi-square with 7 degrees of freedom: 284.933333.

P-value computed by Friedman Test: 1.3832102130351132E-10.

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-S vs. MLPClassifier	12.521981	0
27	DSC-R vs. MLPClassifier	11.08717	0
26	REA vs. MLPClassifier	10.211377	0
25	DSC-S vs. OUSE	9.820065	0
24	DSC-S vs. KMeanClustering	9.335584	0
23	LearnppCDS vs. MLPClassifier	8.534326	0
22	DSC-R vs. OUSE	8.385255	0
21	DSC-R vs. KMeanClustering	7.900774	0
20	REA vs. OUSE	7.509462	0
19	KMeanClustering vs. REA	7.02498	0
18	DSC-S vs. LearnppNIE	6.503231	0
17	LearnppNIE vs. MLPClassifier	6.01875	0
16	LearnppCDS vs. OUSE	5.832411	0
15	KMeanClustering vs. LearnppCDS	5.347929	0
14	DSC-R vs. LearnppNIE	5.068421	0
13	LearnppNIE vs. REA	4.192627	0.000028
12	DSC-S vs. LearnppCDS	3.987655	0.000067
11	LearnppNIE vs. OUSE	3.316834	0.00091
10	KMeanClustering vs. MLPClassifier	3.186397	0.001441
9	KMeanClustering vs. LearnppNIE	2.832353	0.004621
8	OUSE vs. MLPClassifier	2.701915	0.006894
7	DSC-R vs. LearnppCDS	2.552844	0.010685
6	LearnppCDS vs. LearnppNIE	2.515576	0.011884
5	DSC-S vs. REA	2.310604	0.020855
4	LearnppCDS vs. REA	1.677051	0.093533
3	DSC-R vs. DSC-S	1.43481	0.151341
2	DSC-R vs. REA	0.875793	0.381142
1	KMeanClustering vs. OUSE	0.484481	0.628044

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-S vs. MLPClassifier	12.521981	0
27	DSC-R vs. MLPClassifier	11.08717	0
26	REA vs. MLPClassifier	10.211377	0
25	DSC-S vs. OUSE	9.820065	0
24	DSC-S vs. KMeanClustering	9.335584	0
23	LearnppCDS vs. MLPClassifier	8.534326	0
22	DSC-R vs. OUSE	8.385255	0
21	DSC-R vs. KMeanClustering	7.900774	0
20	REA vs. OUSE	7.509462	0
19	KMeanClustering vs. REA	7.02498	0
18	DSC-S vs. LearnppNIE	6.503231	0
17	LearnppNIE vs. MLPClassifier	6.01875	0
16	LearnppCDS vs. OUSE	5.832411	0
15	KMeanClustering vs. LearnppCDS	5.347929	0
14	DSC-R vs. LearnppNIE	5.068421	0
13	LearnppNIE vs. REA	4.192627	0.000028
12	DSC-S vs. LearnppCDS	3.987655	0.000067
11	LearnppNIE vs. OUSE	3.316834	0.00091
10	KMeanClustering vs. MLPClassifier	3.186397	0.001441
9	KMeanClustering vs. LearnppNIE	2.832353	0.004621
8	OUSE vs. MLPClassifier	2.701915	0.006894
7	DSC-R vs. LearnppCDS	2.552844	0.010685
6	LearnppCDS vs. LearnppNIE	2.515576	0.011884
5	DSC-S vs. REA	2.310604	0.020855
4	LearnppCDS vs. REA	1.677051	0.093533
3	DSC-R vs. DSC-S	1.43481	0.151341
2	DSC-R vs. REA	0.875793	0.381142
1	KMeanClustering vs. OUSE	0.484481	0.628044

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-S vs .MLPClassifier	0	0
2	DSC-R vs .MLPClassifier	0	0
3	REA vs .MLPClassifier	0	0
4	DSC-S vs .OUSE	0	0
5	DSC-S vs .KMeanClustering	0	0
6	LearnppCDS vs .MLPClassifier	0	0
7	DSC-R vs .OUSE	0	0
8	DSC-R vs .KMeanClustering	0	0
9	REA vs .OUSE	0	0
10	KMeanClustering vs .REA	0	0
11	DSC-S vs .LearnppNIE	0	0
12	LearnppNIE vs .MLPClassifier	0	0
13	LearnppCDS vs .OUSE	0	0
14	KMeanClustering vs .LearnppCDS	0	0.000002
15	DSC-R vs .LearnppNIE	0	0.000011
16	LearnppNIE vs .REA	0.000028	0.000772
17	DSC-S vs .LearnppCDS	0.000067	0.001868
18	LearnppNIE vs .OUSE	0.00091	0.025492
19	KMeanClustering vs .MLPClassifier	0.001441	0.040336
20	KMeanClustering vs .LearnppNIE	0.004621	0.129379
21	OUSE vs .MLPClassifier	0.006894	0.193036
22	DSC-R vs .LearnppCDS	0.010685	0.299172
23	LearnppCDS vs .LearnppNIE	0.011884	0.332746
24	DSC-S vs .REA	0.020855	0.583933
25	LearnppCDS vs .REA	0.093533	2.61891
26	DSC-R vs .DSC-S	0.151341	4.237553
27	DSC-R vs .REA	0.381142	10.671988
28	KMeanClustering vs .OUSE	0.628044	17.585239

Table 4: Adjusted p-values