## 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

20		~1			-			~1
Ranking	2.3654	2.3462	6.1154	1.5385	5.6154	3.75	6.5	7.7692
Algorithm	DSC-R	DSC-S	KMeanClustering	LearnppCDS	LearnppNIE	REA	OUSE	MLPClassifier

Table 1: Average Rankings of the algorithms

Friedman statistic considering reduction performance (distributed according to chi-square with 7 degrees of freedom: 160.637821.

## 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 $\alpha = 0.05$

algorithms LearnppCDS vs. MLPClassifier		$z = (R_0 - R_i)/SE$ $9.171444$	<i>d</i> 0
DSC-S vs. MLPClassifier	sifier	7.982553	0
DSC-R vs. MLPClassifier	sifier	7.954246	0
LearnppCDS vs. OUSE	ISE	7.303187	0
KMeanClustering vs. LearnppCDS	rnppCDS	6.737048	0
DSC-S vs. OUSE		6.114296	0
DSC-R vs. OUSE	(c)	6.085989	0
LearnppCDS vs. LearnppNIE	ppNIE	6.001068	0
REA vs. MLPClassifier	ifier	5.916148	0
DSC-S vs. KMeanClustering	stering	5.548157	0
DSC-R vs. KMeanClustering	tering	5.519851	0
DSC-S vs. LearnppNIE	VIE.	4.812177	0.000001
DSC-R vs. LearnppNIE	VIE.	4.78387	0.000002
REA vs. OUSE		4.04789	0.000052
KMeanClustering vs. REA	REA	3.481752	0.000498
LearnppCDS vs. REA	A	3.255296	0.001133
LearnppNIE vs. MLPClassifier	assifier	3.170376	0.001522
LearnppNIE vs. REA	3A	2.745772	0.006037
KMeanClustering vs. MLPClassifier	Classifier	2.434396	0.014917
DSC-S vs. REA		2.066406	0.03879
DSC-R vs. REA		2.038099	0.04154
OUSE vs. MLPClassifier	ifier	1.868257	0.061726
LearnppNIE vs. OUSE	SE	1.302119	0.192876
DSC-R vs. LearnppCDS	CDS	1.217198	0.223529
DSC-S vs. LearnppCDS	DS	1.188891	0.234483
KMeanClustering vs. LearnppNIE	rnppNIE	0.73598	0.461743
KMeanClustering vs. OUSE	OUSE	0.566139	0.5713
DSC-R vs. DSC-S	à	0.028307	0.977417

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

z = ( filer	d	0	0	0	0	0	0	0	0	0	0	0	0.000001	0.000002	0.000052	0.000498	0.001133	0.001522	0.006037	0.014917	0.03879	0.04154	0.061726	0.192876	0.223529	0.234483	0.461743	0.5713	0.977417
	$\parallel$	9.171444	7.982553	7.954246	7.303187	6.737048	6.114296	6.085989	6.001068	5.916148	5.548157	5.519851	4.812177	4.78387	4.04789	3.481752	3.255296	3.170376	2.745772	2.434396	2.066406	2.038099	1.868257	1.302119	1.217198	1.188891	0.73598	0.566139	0.028307
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	algorithms	LearnppCDS vs. MLPClassifier	DSC-S vs. MLPClassifier	DSC-R vs. MLPClassifier	LearnppCDS vs. OUSE	KMeanClustering vs. LearnppCDS	DSC-S vs. OUSE	DSC-R vs. OUSE	LearnppCDS vs. LearnppNIE	REA vs. MLPClassifier	DSC-S vs. KMeanClustering	DSC-R vs. KMeanClustering	DSC-S vs. LearnppNIE	DSC-R vs. LearnppNIE	REA vs. OUSE	KMeanClustering vs. REA	LearnppCDS vs. REA	LearnppNIE vs. MLPClassifier	LearnppNIE vs. REA	KMeanClustering vs. MLPClassifier	DSC-S vs. REA	DSC-R vs. REA	OUSE vs. MLPClassifier	LearnppNIE vs. OUSE	DSC-R vs. LearnppCDS	DSC-S vs. LearnppCDS	KMeanClustering vs. LearnppNIE	KMeanClustering vs. OUSE	DSC-R vs. DSC-S
I control of the cont	$\dot{i}$	28	27	56	22	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	6	œ	7	9	ಬ	4	က	2	1

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

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

$p_{Neme}$	0	0	0	0	0	0	0	0	0	0.000001	0.000001	0.000042	0.000048	0.001447	0.013948	0.031717	0.042628	0.169032	0.417667	1.086126	1.163122	1.728335	5.400524	6.258811	6.565513	12.928799	15.996389	27.367686
unadjusted $p$	0	0	0	0	0	0	0	0	0	0	0	0.000001	0.000002	0.000052	0.000498	0.001133	0.001522	0.006037	0.014917	0.03879	0.04154	0.061726	0.192876	0.223529	0.234483	0.461743	0.5713	0.977417
hypothesis	LearnppCDS vs .MLPClassifier	DSC-S vs .MLPClassifier	DSC-R vs .MLPClassifier	LearnppCDS vs .OUSE	KMeanClustering vs .LearnppCDS	DSC-S vs .OUSE	DSC-R vs .OUSE	LearnppCDS vs .LearnppNIE	REA vs .MLPClassifier	DSC-S vs .KMeanClustering	DSC-R vs .KMeanClustering	DSC-S vs .LearnppNIE	DSC-R vs .LearnppNIE	REA vs.OUSE	KMeanClustering vs .REA	LearnppCDS vs .REA	LearnppNIE vs .MLPClassifier	LearnppNIE vs .REA	KMeanClustering vs .MLPClassifier	DSC-S vs .REA	DSC-R vs .REA	OUSE vs .MLPClassifier	LearnppNIE vs .OUSE	DSC-R vs .LearnppCDS	DSC-S vs .LearnppCDS	KMeanClustering vs .LearnppNIE	KMeanClustering vs.OUSE	DSC-R vs .DSC-S
	П	2	3	4	2	9	7	œ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	22	56	27	28

Table 4: Adjusted p-values