Output tables for the test of Multiple comparisons.

March 29, 2022

1 Average rankings of Friedman test

Average ranks obtained by applying the Friedman procedure

Algorithm	Ranking
Slime-mould	2.1333
Grey-wolf	2.3667
Dragon-fly	3.3667
QuantumEigensolver	2.1333

Table 1: Average Rankings of the algorithms

Friedman statistic considering reduction performance (distributed according to chi-square with 3 degrees of freedom: 18.68.
P-value computed by Friedman Test: 3.1837265678102966E-4.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 3 and 87 degrees of freedom: 7.595625.

P-value computed by Iman and Daveport Test: 1.4344847696136438E-4.

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	Holm
6	Slime-mould vs. Dragon-fly	3.7	0.000216	0.008333
5	Dragon-fly vs. QuantumEigensolver	3.7	0.000216	0.01
4	Grey-wolf vs. Dragon-fly	3	0.0027	0.0125
3	Slime-mould vs. Grey-wolf	0.7	0.483927	0.016667
2	Grey-wolf vs. QuantumEigensolver	0.7	0.483927	0.025
1	Slime-mould vs. QuantumEigensolver	0	1	0.05

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

Holm's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.016667.

2.2 P-values for $\alpha = 0.10$

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm
6	Slime-mould vs. Dragon-fly	3.7	0.000216	0.016667
5	Dragon-fly vs. QuantumEigensolver	3.7	0.000216	0.02
4	Grey-wolf vs. Dragon-fly	3	0.0027	0.025
3	Slime-mould vs. Grey-wolf	0.7	0.483927	0.033333
2	Grey-wolf vs. QuantumEigensolver	0.7	0.483927	0.05
1	Slime-mould vs. QuantumEigensolver	0	1	0.1

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

Holm's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.033333.

2.3 Adjusted p-values

i	hypothesis	unadjusted p	p_{Holm}
1	Slime-mould vs .Dragon-fly	0.000216	0.001294
2	Dragon-fly vs .QuantumEigensolver	0.000216	0.001294
3	Grey-wolf vs .Dragon-fly	0.0027	0.010799
4	Slime-mould vs .Grey-wolf	0.483927	1.451782
5	Grey-wolf vs .QuantumEigensolver	0.483927	1.451782
6	Slime-mould vs .QuantumEigensolver	1	1.451782

Table 4: Adjusted p-values