data/REGAL.csv

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1 Tables of Friedman, Aligned Friedman, Bonferroni-Dunn, Holm, Hochberg and Hommel Tests

Table 1: Average Rankings of the algorithms (Friedman)

Algorithm	Ranking
CADD$_G M_t st$	5.523809523809525
CAIM$_G M_t st$	3.4880952380952377
Chi2Merge$_G M_t st$	3.023809523809523
ChiMerge$_G M_t st$	3.238095238095238
Fayyad$_G M_t st$	3.511904761904762
ID3$_G M_t st$	5.261904761904761
USD$_G M_t st$	3.9523809523809534

Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 53.553571428571274. P-value computed by Friedman Test: 9.558543956345034E-10.

Iman and Davenport statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 11.064429047061958. P-value computed by Iman and Daveport Test: 6.424972638902746E-11.

Table 2: Average Rankings of the algorithms (Aligned Friedman)

Algorithm	Ranking
CADD$_G M_t st$	205.78571428571425
CAIM$_G M_t st$	122.13095238095238
Chi2Merge$_G M_t st$	104.78571428571429
ChiMerge$_G M_t st$	119.61904761904762
Fayyad$_G M_t st$	131.7261904761905
ID3$_G M_t st$	193.9761904761905
USD$_G M_t st$	154.47619047619048

Aligned Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 37.60111819327754. P-value computed by Aligned Friedman Test: 1.3441922654955363E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
CADD$_G M_t st$	5.043189368770764
CAIM$_G M_t st$	3.6179401993355484
Chi2Merge$_G M_t st$	3.0155038759689914
ChiMerge$_G M_t st$	3.5548172757475087
Fayyad$_G M_t st$	3.7530454042081955
ID3$_G M_t st$	4.92248062015504
USD$_G M_t st$	4.093023255813953

Quade statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 4.0567084841607635. P-value computed by Quade Test: 6.739210140592213E-4.

Table 4: Contrast Estimation

	CADD$_{GMtst}$	CAIM$_{GMtst}$	Chi2Merge$_{GMtst}$	ChiMerge$_{GMtst}$	Fayyad$_{GMtst}$	ID3$_{GMtst}$	USD$_{GMtst}$
CADD$_{GMtst}$	0,00000000	-0,18504071	-0,21796357	-0,19505571	-0,17664643	-0,04631857	-0,12499500
CAIM$_{GMtst}$	0,18504071	0,00000000	-0,03292286	-0,01001500	0,00839429	0,13872214	0,06004571
Chi2Merge$_{GMtst}$	0,21796357	0,03292286	0,00000000	0,02290786	0,04131714	0,17164500	0,09296857
ChiMerge$_{GMtst}$	0,19505571	0,01001500	-0,02290786	0,00000000	0,01840929	0,14873714	0,07006071
Fayyad$_{GMtst}$	0,17664643	-0,00839429	-0,04131714	-0,01840929	0,00000000	0,13032786	0,05165143
ID3$_{GMtst}$	0,04631857	-0,13872214	-0,17164500	-0,14873714	-0,13032786	0,00000000	-0,07867643
USD$_{GMtst}$	0,12499500	-0,06004571	-0,09296857	-0,07006071	-0,05165143	0,07867643	0,00000000

Table 5: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (FRIEDMAN)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	5.30330085889911	1.1372725658245564E-7	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.0184516001814642
5	ID3$_G M_t st$	4.74771695939539	2.057256577199668E-6	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.0184516001814642
4	USD$_G M_t st$	1.9697974618768153	0.04886158759549619	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.0184516001814642
3	Fayyad$_G M_t st$	1.035406358166018	0.3004791776338106	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.0184516001814642
2	CAIM$_G M_t st$	0.9848987309384067	0.3246738168102641	0.025	0.025320565519103666	0.025	0.04184374797610979	0.0184516001814642
1	ChiMerge$_G M_t st$	0.454568645048497	0.6494195965521801	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.01.
Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.012741455098566168$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.010515350115740741$.
Finner's procedure rejects those hypotheses that have a p-value $\leq 0.025320565519103666$.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.01845160018146421.

Table 6: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (ALIGNED FRIEDMAN)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	5.444236350774941	5.202810108116545E-8	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.0303177760223968
5	ID3$_G M_t st$	4.807663689298195	1.527043729455271 2E-6	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.0303177760223968
4	USD$_G M_t st$	2.6784821461733395	0.007395667481818099	0.0125	0.012714550985661 68	0.013109375000000001	0.025320565519103666	0.0303177760223968
3	Fayyad$_G M_t st$	1.4521813839938367	0.14645117750888131	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.0303177760223968
2	CAIM$_G M_t st$	0.9349660965439756	0.34980577193933027	0.025	0.025320565519103666	0.025	0.04184374797610979	0.0303177760223968
1	ChiMerge$_G M_t st$	0.7995660647177719	0.4239622555744605	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Hommel's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.016952427508441503$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.013109375000000001$.
Finner's procedure rejects those hypotheses that have a p-value ≤ 0.03361747021845407.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.03031777602239682.

Table 7: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (QUADE)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	2.163299340969417	0.03051816375258205	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.022893046739711032
5	ID3$_G M_t st$	2.0345174577549643	0.04189945024464293	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.022893046739711032
4	USD$_G M_t st$	1.1495850675932509	0.25031481131330946	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.022893046739711032
3	Fayyad$_G M_t st$	0.7868691212919903	0.4313584852792075	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.0336174702184540 7	0.022893046739711032
2	CAIM$_G M_t st$	0.6427279309051691	0.5204006540400877	0.025	0.025320565519103666	0.025	0.04184374797610979	0.022893046739711032
1	ChiMerge$_G M_t st$	0.5753832763801793	0.5650321119454904	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Hommel's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.008512444610847103$.
Finner's procedure rejects those hypotheses that have a p-value $\leq 0.008512444610847103$.
Li's procedure rejects those hypotheses that have a p-value $\leq 0.022893046739711032$.

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Table 8: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	1.1372725658245564E-7	6.823635394947338E-7	6.823635394947338E-7	6.823635394947338E-7	6.823635394947338E-7
2	ID3$_G M_t st$	2.057256577199668E-6	1.2343539463198007E-5	1.0286282885998339E-5	1.0286282885998339E-5	1.0286282885998339E-5
3	USD$_G M_t st$	0.04886158759549619	0.29316952557297715	0.19544635038198477	0.19544635038198477	0.19544635038198477
4	Fayyad$_G M_t st$	0.3004791776338106	1.8028750658028636	0.9014375329014318	0.6493476336205282	0.6009583552676212
5	CAIM$_G M_t st$	0.3246738168102641	1.9480429008615845	0.9014375329014318	0.6493476336205282	0.6493476336205282
6	ChiMerge$_G M_t st$	0.6494195965521801	3.8965175793130804	0.9014375329014318	0.6494195965521801	0.6494195965521801

Table 9: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	1.1372725658245564E-7	6.823633457164746E-7	6.488198691545013E-7	6.823633457164746E-7	3.243969673467661E-7
2	ID3$_G M_t st$	2.057256577199668E-6	1.0286240563095461E-5	9.78215919848498E-6	6.171757034656444E-6	5.8681103814098065E-6
3	USD$_G M_t st$	0.04886158759549619	0.1815825413038188	0.18636123993514636	0.09533572044864003	0.12232461456511604
4	Fayyad$_G M_t st$	0.3004791776338106	0.6577039090481962	0.6493476336205282	0.41493924165792506	0.46152331732007223
5	CAIM$_G M_t st$	0.3246738168102641	0.6577039090481962	0.6493476336205282	0.41493924165792506	0.48081716051500256
6	ChiMerge$_G M_t st$	0.6494195965521801	0.6577039090481962	0.6494195965521801	0.6494195965521801	0.6494195965521801

Table 10: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	5.202810108116545E-8	3.121686064869927E-7	3.121686064869927E-7	3.121686064869927E-7	3.121686064869927E-7
2	ID3$_G M_t st$	1.527043729455 2712E-6	9.162262376731627E-6	7.635218647276356E-6	7.635218647276356E-6	7.635218647276356E-6
3	USD$_G M_t st$	0.007395667481818099	0.04437400489090859	0.029582669927272397	0.029582669927272397	0.029582669927272397
4	Fayyad$_G M_t st$	0.14645117750888131	0.8787070650532879	0.43935353252664394	0.4239622555744605	0.4239622555744605
5	CAIM$_G M_t st$	0.34980577193933027	2.098834631635982	0.6996115438786605	0.4239622555744605	0.4239622555744605
6	ChiMerge$_G M_t st$	0.4239622555744605	2.543773533446763	0.6996115438786605	0.4239622555744605	0.4239622555744605

Table 11: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	5.202810108116545E-8	3.1216856566373963E-7	2.968230022445341E-7	3.1216856566373963E-7	9.03206376412709E-8
2	ID3$_G M_t st$	1.527043729455 2712E-6	7.635195328759004E-6	7.261021804539793E-6	4.58112419277068E-6	2.65093684595554E-6
3	USD$_G M_t st$	0.007395667481818099	0.029256109601303537	0.028207551778090482	0.014736639066134538	0.012676112356404512
4	Fayyad$_G M_t st$	0.14645117750888131	0.37815076749639165	0.4239622555744605	0.21142582308091762	0.2027036997560697
5	CAIM$_G M_t st$	0.34980577193933027	0.5772474657965898	0.4239622555744605	0.4034432943418296	0.3778238608968924
6	ChiMerge$_G M_t st$	0.4239622555744605	0.5772474657965898	0.4239622555744605	0.42396225557446043	0.4239622555744605

Table 12: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	0.03051816375258205	0.1831089825154923	0.1831089825154923	0.1831089825154923	0.15259081876291025
2	ID3$_G M_t st$	0.04189945024464293	0.2513967014678576	0.20949725122321464	0.20949725122321464	0.20949725122321464
3	USD$_G M_t st$	0.25031481131330946	1.5018888678798568	1.0012592452532378	0.5650321119454904	0.5650321119454904
4	Fayyad$_G M_t st$	0.4313584852792075	2.5881509116752452	1.2940754558376226	0.5650321119454904	0.5650321119454904
5	CAIM$_G M_t st$	0.5204006540400877	3.122403924240526	1.2940754558376226	0.5650321119454904	0.5650321119454904
6	ChiMerge$_G M_t st$	0.5650321119454904	3.3901926716729425	1.2940754558376226	0.5650321119454904	0.5650321119454904

Table 13: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	0.03051816375258205	0.169694221248038	0.1741076994891701	0.169694221248038	0.06556192958759052
2	ID3$_G M_t st$	0.04189945024464293	0.19266190266160887	0.1992299342554576	0.169694221248038	0.08786395477217229
3	USD$_G M_t st$	0.25031481131330946	0.684124659701499	0.5650321119454904	0.4379721178638012	0.36527233438729406
4	Fayyad$_G M_t st$	0.4313584852792075	0.81612796233405	0.5650321119454904	0.5711969710158871	0.4979168342980183
5	CAIM$_G M_t st$	0.5204006540400877	0.81612796233405	0.5650321119454904	0.5859485607419609	0.5447119421570398
6	ChiMerge$_G M_t st$	0.5650321119454904	0.81612796233405	0.5650321119454904	0.5859485607419609	0.5650321119454904