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$_G M_t st$	6.571428571428574
CAIM$_G M_t st$	3.2142857142857144
Chi2Merge$_G M_t st$	2.1785714285714275
ChiMerge$_G M_t st$	3.75
Fayyad$_G M_t st$	3.023809523809523
ID3$_G M_t st$	4.976190476190475
USD$_G M_t st$	4.285714285714286

Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 113.37500000000018. P-value computed by Friedman Test: 5.954825521570228E-11.

Iman and Davenport statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 33.53201082055916. P-value computed by Iman and Daveport Test: 1.8982091609388905E-29.

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

Algorithm	Ranking
CADD$_G M_t st$	257.452380952381
CAIM$_G M_t st$	123.99999999999997
Chi2Merge$_G M_t st$	71.70238095238095
ChiMerge$_G M_t st$	139.41666666666666
Fayyad$_G M_t st$	108.95238095238096
ID3$_G M_t st$	176.73809523809518
USD$_G M_t st$	154.2380952380953

Aligned Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 36.72823263537992. P-value computed by Aligned Friedman Test: 1.989278706870934E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
CADD$_G M_t st$	6.830564784053158
CAIM$_G M_t st$	3.4130675526024365
Chi2Merge$_G M_t st$	1.8521594684385385
ChiMerge$_G M_t st$	3.7779623477297886
Fayyad$_G M_t st$	2.9335548172757475
ID3$_G M_t st$	4.980066445182725
USD$_G M_t st$	4.212624584717608

Quade statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 28.598522799280353. P-value computed by Quade Test: 7.235041707262945E-26.

Table 4: Contrast Estimation

	CADD$_{GMtst}$	CAIM$_{GMtst}$	Chi2Merge$_{GMtst}$	ChiMerge$_{GMtst}$	Fayyad$_{GMtst}$	ID3$_{GMtst}$	USD$_{GMtst}$
CADD$_{GMtst}$	0,00000000	-0,31486929	-0,35419643	-0,30540000	-0,32187143	-0,25691429	-0,27799857
CAIM$_{GMtst}$	0,31486929	0,00000000	-0,03932714	0,00946929	-0,00700214	0,05795500	0,03687071
Chi2Merge$_{GMtst}$	0,35419643	0,03932714	0,00000000	0,04879643	0,03232500	0,09728214	0,07619786
ChiMerge$_{GMtst}$	0,30540000	-0,00946929	-0,04879643	0,00000000	-0,01647143	0,04848571	0,02740143
Fayyad$_{GMtst}$	0,32187143	0,00700214	-0,03232500	0,01647143	0,00000000	0,06495714	0,04387286
ID3$_{GMtst}$	0,25691429	-0,05795500	-0,09728214	-0,04848571	-0,06495714	0,00000000	-0,02108429
USD$_{GMtst}$	0,27799857	-0,03687071	-0,07619786	-0,02740143	-0,04387286	0,02108429	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$_G M_t st$	9.318657223494151	1.178219097208022E-20	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.0487910734953391
5	ID3$_G M_t st$	5.934646199244239	2.9447982423130758E-9	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.0487910734953391
4	USD$_G M_t st$	4.469925009643535	7.824702690009163E-6	0.0125	0.012714550985661 68	0.013109375000000001	0.025320565519103666	0.0487910734953391
3	ChiMerge$_G M_t st$	3.3335033970222976	8.575962437412868E-4	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.0487910734953391
2	CAIM$_G M_t st$	2.197081784401061	0.02801460579893635	0.025	0.025320565519103666	0.025	0.04184374797610979	0.0487910734953391
1	Fayyad$_G M_t st$	1.7930207665801743	0.07296960358855709	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 ≤ 0.025.
Hochberg's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.025.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.025320565519103666$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Finner's procedure rejects those hypotheses that have a p-value $\leq 0.050000000000000044$.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.04879107349533911.

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$_G M_t st$	10.012543585707386	1.3425555700618613E-23	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.050281367360636
5	ID3$_G M_t st$	5.661774790533628	1.49815361507587E-8	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.050281367360636
4	USD$_G M_t st$	4.448949860905553	8.62911552806492E-6	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.050281367360636
3	ChiMerge$_G M_t st$	3.6500255024997497	2.622142737869121E-4	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.050281367360636
2	CAIM$_G M_t st$	2.8190158284953224	0.0048171142637145545	0.025	0.025320565519103666	0.025	0.04184374797610979	0.050281367360636
1	Fayyad$_G M_t st$	2.0078990501620466	0.04465402014791203	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Hommel's procedure rejects all hypotheses.
Rom's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.05.

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$_G M_t st$	5.311366568720925	1.0880622100310685E-7	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.0395465856508343
5	ID3$_G M_t st$	3.337104854488322	8.465600390098647E-4	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.0395465856508343
4	USD$_G M_t st$	2.5183356336844946	0.011791090245259756	0.0125	0.012714550985661 68	0.013109375000000001	0.025320565519103666	0.0395465856508343
3	ChiMerge$_G M_t st$	2.0546027055957468	0.03991739413393785	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.0395465856508343
2	CAIM$_G M_t st$	1.6653033430346216	0.09585225191884846	0.025	0.025320565519103666	0.025	0.04184374797610979	0.0395465856508343
1	Fayyad$_G M_t st$	1.1537202656781183	0.248614872634148	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 $\leq 0.039546585650834326$.

Table 8: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	1.178219097208022E-20	7.069314583248132E-20	7.069314583248132E-20	7.069314583248132E-20	7.069314583248132E-20
2	ID3$_G M_t st$	2.9447982423130758E-9	1.7668789453878455E-8	1.4723991211565378E-8	1.4723991211565378E-8	1.4723991211565378E-8
3	USD$_G M_t st$	7.824702690009163E-6	4.6948216140054976E-5	3.129881076003665E-5	3.129881076003665E-5	3.129881076003665E-5
4	ChiMerge$_G M_t st$	8.575962437412868E-4	0.005145577462447721	0.0025727887312238604	0.0025727887312238604	0.0025727887312238604
5	CAIM$_G M_t st$	0.02801460579893635	0.1680876347936181	0.0560292115978727	0.0560292115978727	0.0560292115978727
6	Fayyad$_G M_t st$	0.07296960358855709	0.4378176215313425	0.07296960358855709	0.07296960358855709	0.07296960358855709

Table 9: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	1.178219097208022E-20	0.0	6.721800766657841E-20	0.0	1.2709605874510012E-20
2	ID3$_G M_t st$	2.9447982423130758E-9	1.4723991359488764E-8	1.4002378474801897E-8	8.83439488230664E-9	3.176592962170427E-9
3	USD$_G M_t st$	7.824702690009163E-6	3.129844340610255E-5	2.9843919675839477E-5	1.5649344153989553E-5	8.440539464063607E-6
4	ChiMerge$_G M_t st$	8.575962437412868E-4	0.002570582948009381	0.0025727887312238604	0.0012861185244341655	9.242454375201525E-4
5	CAIM$_G M_t st$	0.02801460579893635	0.05524439345980292	0.0560292115978727	0.033522636207097944	0.029333283493551264
6	Fayyad$_G M_t st$	0.07296960358855709	0.07296960358855709	0.07296960358855709	0.07296960358855709	0.0729696035885571

Table 10: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	1.3425555700618613E-23	8.055333420371168E-23	8.055333420371168E-23	8.055333420371168E-23	8.055333420371168E-23
2	ID3$_G M_t st$	1.49815361507587E-8	8.988921690455221E-8	7.490768075379351E-8	7.490768075379351E-8	7.490768075379351E-8
3	USD$_G M_t st$	8.62911552806492E-6	5.177469316838952E-5	3.451646211225968E-5	3.451646211225968E-5	3.451646211225968E-5
4	ChiMerge$_G M_t st$	2.622142737869121E-4	0.0015732856427214726	7.866428213607363E-4	7.866428213607363E-4	7.866428213607363E-4
5	CAIM$_G M_t st$	0.0048171142637145545	0.028902685582287327	0.009634228527429109	0.009634228527429109	0.009634228527429109
6	Fayyad$_G M_t st$	0.04465402014791203	0.2679241208874722	0.04465402014791203	0.04465402014791203	0.04465402014791203

Table 11: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	1.3425555700618613E-23	0.0	7.65934882697735E-23	0.0	1.4053082321754504E-23
2	ID3$_G M_t st$	1.49815361507587E-8	7.490767839346546E-8	7.123650656354462E-8	4.494460770221309E-8	1.568179092368286E-8
3	USD$_G M_t st$	8.62911552806492E-6	3.451601534476545E-5	3.2912002014073586E-5	1.725815659436858E-5	9.0323691821509E-6
4	ChiMerge$_G M_t st$	2.622142737869121E-4	7.864365704135512E-4	7.866428213607363E-4	3.9329562593148903E-4	2.743951709484532 3E-4
5	CAIM$_G M_t st$	0.0048171142637145545	0.009611023937599494	0.009634228527429109	0.005777748980970054	0.005016975025634109
6	Fayyad$_G M_t st$	0.04465402014791203	0.04465402014791198	0.04465402014791203	0.04465402014791198	0.04465402014791203

Table 12: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	1.0880622100310685E-7	6.528373260186411E-7	6.528373260186411E-7	6.528373260186411E-7	6.528373260186411E-7
2	ID3$_G M_t st$	8.465600390098647E-4	0.0050793602340591885	0.004232800195049323	0.004232800195049323	0.004232800195049323
3	USD$_G M_t st$	0.011791090245259756	0.07074654147155854	0.04716436098103902	0.04716436098103902	0.04716436098103902
4	ChiMerge$_G M_t st$	0.03991739413393785	0.23950436480362708	0.11975218240181354	0.11975218240181354	0.11975218240181354
5	CAIM$_G M_t st$	0.09585225191884846	0.5751135115130908	0.1917045038376969	0.1917045038376969	0.1917045038376969
6	Fayyad$_G M_t st$	0.248614872634148	1.491689235804888	0.248614872634148	0.248614872634148	0.248614872634148

Table 13: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	1.0880622100310685E-7	6.528371485625684E-7	6.207451071612511E-7	6.528371485625684E-7	1.448075045464287E-7
2	ID3$_G M_t st$	8.465600390098647E-4	0.004225639620475285 5	0.004025353553100546	0.002537530732029669	0.0011253980032806484
3	USD$_G M_t st$	0.011791090245259756	0.04633672004882672	0.04497197709753423	0.023443150681347502	0.015450023170491519
4	ChiMerge$_G M_t st$	0.03991739413393785	0.11503559164860766	0.11975218240181354	0.05927453082666445	0.05044517494811047
5	CAIM$_G M_t st$	0.09585225191884846	0.18251684963978265	0.1917045038376969	0.11389071772877424	0.11313506021154768
6	Fayyad$_G M_t st$	0.248614872634148	0.24861487263414794	0.248614872634148	0.24861487263414794	0.248614872634148