data/Ripper.csv

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

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Table 1: Average Rankings of the algorithms (Friedman)

Algorithm	Ranking
continuos$_G M_t st$	1.8095238095238086
CADD$_G M_t st$	7.285714285714291
CAIM$_G M_t st$	4.5476190476190474
Chi2Merge$_G M_t st$	3.1190476190476177
ChiMerge$_G M_t st$	4.619047619047617
Fayyad$_G M_t st$	3.7857142857142874
ID3$_G M_t st$	5.976190476190477
USD$_G M_t st$	4.857142857142857

Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 138.1746031746036. P-value computed by Friedman

Test: 1.107721692150676E-10.

Iman and Davenport statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 36.355811347662424. P-value computed by Iman and Daveport Test: -4.440892098500626E-16.

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

Algorithm	Ranking
continuos$_G M_t st$	70.90476190476191
CADD$_G M_t st$	293.76190476190476
CAIM$_G M_t st$	174.73809523809524
Chi2Merge$_G M_t st$	102.28571428571428
ChiMerge$_G M_t st$	174.21428571428572
Fayyad$_G M_t st$	135.47619047619045
ID3$_G M_t st$	212.59523809523813
USD$_G M_t st$	184.02380952380952

Aligned Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 37.0966524883064. P-value computed by Aligned Friedman Test: 4.497030355987697E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
continuos$_G M_t st$	1.821705426356589
CADD$_G M_t st$	7.373200442967886
CAIM$_G M_t st$	4.706533776301219
Chi2Merge$_G M_t st$	2.9856035437430792
ChiMerge$_G M_t st$	4.859357696566998
Fayyad$_G M_t st$	3.7729789590254703
ID3$_G M_t st$	5.889258028792914
USD$_G M_t st$	4.591362126245847

Quade statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 27.79142009161584. P-value computed by Quade Test: 4.5610626872492335E-29.

Table 4: Contrast Estimation

	continuos$_G M_t st$	CADD$_G M_t st$	CAIM$_G M_t st$	Chi2Merge$_G M_t st$	ChiMerge$_G M_t st$	Fayyad$_G M_t st$	ID3$_G M_t st$	USD$_G M_t st$
continuos$_G M_t st$	0,00000000	0,33874125	0,06440750	0,02006937	0,06454500	0,03520750	0,10384500	0,06894938
CADD$_G M_t st$	-0,33874125	0,00000000	-0,27433375	-0,31867188	-0,27419625	-0,30353375	-0,23489625	-0,26979188
CAIM$_G M_t st$	-0,06440750	0,27433375	0,00000000	-0,04433813	0,00013750	-0,02920000	0,03943750	0,00454187
Chi2Merge$_G M_t st$	-0,02006937	0,31867188	0,04433813	0,00000000	0,04447563	0,01513813	0,08377563	0,04888000
ChiMerge$_G M_t st$	-0,06454500	0,27419625	-0,00013750	-0,04447563	0,00000000	-0,02933750	0,03930000	0,00440437
Fayyad$_G M_t st$	-0,03520750	0,30353375	0,02920000	-0,01513813	0,02933750	0,00000000	0,06863750	0,03374187
ID3$_G M_t st$	-0,10384500	0,23489625	-0,03943750	-0,08377563	-0,03930000	-0,06863750	0,00000000	-0,03489563
USD$_G M_t st$	-0,06894938	0,26979188	-0,00454187	-0,04888000	-0,00440437	-0,03374187	0,03489563	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
7	CADD$_G M_t st$	10.245014273309613	1.2460648844210494E-24	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.0518794842599
6	ID3$_G M_t st$	7.795119555779048	6.434752421627045E-15	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.0518794842599
5	USD$_G M_t st$	5.701573160798388	1.1870676742643796E-8	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.0518794842599
4	ChiMerge$_G M_t st$	5.25613775761101	1.471121127673383E-7	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.0518794842599
3	CAIM$_G M_t st$	5.122507136654802	3.0149968090029067E-7	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.0518794842599
2	Fayyad$_G M_t st$	3.6971138464552085	2.180645643848951E-4	0.025	0.025320565519103666	0.025	0.0430132001682938	0.0518794842599
1	Chi2Merge$_G M_t st$	2.449894717530556	0.014289799060615208	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.0071428571428571435$.
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 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
7	CADD$_G M_t st$	10.513377036503622	7.496026449325135E-26	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.0453282077446
6	ID3$_G M_t st$	6.684306276093276	2.3202110296879582E-11	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.0453282077446
5	USD$_G M_t st$	5.336437425259477	9.47905642483287E-8	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.0453282077446
4	CAIM$_G M_t st$	4.898380048738493	9.662999990030956E-7	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.0453282077446
3	ChiMerge$_G M_t st$	4.87366911980654	1.0954440564177178E-6	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.0453282077446
2	Fayyad$_G M_t st$	3.0461836028843816	0.002317662620273444	0.025	0.025320565519103666	0.025	0.0430132001682938	0.0453282077446
1	Chi2Merge$_G M_t st$	1.4804092878324537	0.1387640528522553	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.0071428571428571435$.
Holm's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.025.
Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.050000000000000044$.
Rom's procedure rejects those hypotheses that have a p-value ≤ 0.025.
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 ≤ 0.04532820774461815.

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
7	CADD$_G M_t st$	4.835933818582295	1.325201160275027E-6	0.007142857142857143	0.007300831979014655	0.007512829321378468 5	0.007300831979014655	0.03628203430360
6	ID3$_G M_t st$	3.543264495442404	3.9520611558949284E-4	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.03628203430360
5	ChiMerge$_G M_t st$	2.6461133980393434	0.008142251638196924	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.03628203430360
4	CAIM$_G M_t st$	2.5129877513279237	0.011971349129236327	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.03628203430360
3	USD$_G M_t st$	2.412661176994677	0.01583653373815987	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.03628203430360
2	Fayyad$_G M_t st$	1.6997636920690207	0.08917538353175955	0.025	0.025320565519103666	0.025	0.0430132001682938	0.03628203430360
1	Chi2Merge$_G M_t st$	1.0138772079253928	0.31064134823142936	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.007142857142857143$.
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 ≤ 0.0430132001682938.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.03628203430360898.

Table 8: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	1.2460648844210494E-24	8.722454190947345E-24	8.722454190947345E-24	8.722454190947345E-24	8.722454190947345E-24
2	ID3$_G M_t st$	6.434752421627045E-15	4.5043266951389314E-14	3.860851452976227E-14	3.860851452976227E-14	3.860851452976227E-14
3	USD$_G M_t st$	1.1870676742643796E-8	8.309473719850658E-8	5.935338371321898E-8	5.935338371321898E-8	5.935338371321898E-8
4	ChiMerge$_G M_t st$	1.471121127673383E-7	1.029784789371368E-6	5.884484510693532E-7	5.884484510693532E-7	5.884484510693532E-7
5	CAIM$_G M_t st$	3.0149968090029067E-7	2.1104977663020347E-6	9.04499042700872E-7	9.04499042700872E-7	9.04499042700872E-7
6	Fayyad$_G M_t st$	2.180645643848951E-4	0.0015264519506942656	4.361291287697902E-4	4.361291287697902E-4	4.361291287697902E-4
7	Chi2Merge$_G M_t st$	0.014289799060615208	0.10002859342430645	0.014289799060615208	0.014289799060615208	0.014289799060615208

Table 9: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	1.2460648844210494E-24	0.0	8.292913569028206E-24	0.0	1.2641290343080003E-24
2	ID3$_G M_t st$	6.434752421627045E-15	3.863576125695545E-14	3.67105947131915E-14	2.2537527399890678E-14	6.528036755117949E-15
3	USD$_G M_t st$	1.1870676742643796E-8	5.9353382431126533E-8	5.6444514980410525E-8	2.7698245586016412E-8	1.2042765295900594E-8
4	ChiMerge$_G M_t st$	1.471121127673383E-7	5.884483209595004E-7	5.610950665738767E-7	2.574461830384678E-7	1.4924476856527084E-7
5	CAIM$_G M_t st$	3.0149968090029067E-7	9.044987699935447E-7	9.04499042700872E-7	4.2209952777483295E-7	3.058704154559098E-7
6	Fayyad$_G M_t st$	2.180645643848951E-4	4.360815766155657E-4	4.361291287697902E-4	2.5440403504284337E-4	2.2117690709827945E-4
7	Chi2Merge$_G M_t st$	0.014289799060615208	0.014289799060615227	0.014289799060615208	0.014289799060615227	0.014289799060615208

Table 10: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	7.496026449325135E-26	5.247218514527595E-25	5.247218514527595E-25	5.247218514527595E-25	5.247218514527595E-25
2	ID3$_G M_t st$	2.3202110296879582E-11	1.6241477207815706E-10	1.392126617812775E-10	1.392126617812775E-10	1.392126617812775E-10
3	USD$_G M_t st$	9.47905642483287E-8	6.635339497383009E-7	4.7395282124164346E-7	4.7395282124164346E-7	4.7395282124164346E-7
4	CAIM$_G M_t st$	9.66299990030956E-7	6.764099930216692E-6	3.865199960123824E-6	3.286332169253153E-6	2.898899970092868E-6
5	ChiMerge$_G M_t st$	1.0954440564177178E-6	7.668108394924025E-6	3.865199960123824E-6	3.286332169253153E-6	3.286332169253153E-6
6	Fayyad$_G M_t st$	0.002317662620273444	0.016223638341914107	0.004635325240546888	0.004635325240546888	0.004635325240546888
7	Chi2Merge$_G M_t st$	0.1387640528522553	0.971348369965787	0.1387640528522553	0.1387640528522553	0.1387640528522553

Table 11: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	7.496026449325135E-26	0.0	4.9888172143046575E-25	0.0	8.703801175683155E-26
2	ID3$_G M_t st$	2.3202110296879582E-11	1.3921264141458778E-10	1.3236923688575154E-10	8.120737415850954E-11	2.6940480565280208E-11
3	USD$_G M_t st$	9.47905642483287E-8	4.7395273161665585E-7	4.5072471769833834E-7	2.211779693839233E-7	1.1006339683020213E-7
4	CAIM$_G M_t st$	9.66299990030956E-7	3.865194357688395E-6	3.286332169253153E-6	1.6910243697543237E-6	1.1219909120739253E-6
5	ChiMerge$_G M_t st$	1.0954440564177178E-6	3.865194357688395E-6	3.286332169253153E-6	1.6910243697543237E-6	1.2719425689367654E-6
6	Fayyad$_G M_t st$	0.002317662620273444	0.004629953680525434	0.004635325240546888	0.002703417152080334	0.002683866518601031
7	Chi2Merge$_G M_t st$	0.1387640528522553	0.13876405285225535	0.1387640528522553	0.13876405285225535	0.1387640528522553

Table 12: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G$ $M_t st$	1.3252201160275027E-6	9.276540812192518E-6	9.276540812192518E-6	9.276540812192518E-6	9.276540812192518E-6
2	ID3$_G$ $M_t st$	3.9520611558949284E-4	0.00276644280912645	0.002371236693536957	0.002371236693536957	0.002371236693536957
3	ChiMerge$_G$ $M_t st$	0.008142251638196924	0.05699576146737847	0.04071125819098462	0.04071125819098462	0.03167306747631974
4	CAIM$_G$ $M_t st$	0.011971349129236327	0.0837994439046543	0.04788539651694531	0.04750960121447961	0.03591404738770898
5	USD$_G$ $M_t st$	0.01583653373815987	0.11085573616711909	0.04788539651694531	0.04750960121447961	0.04750960121447961
6	Fayyad$_G$ $M_t st$	0.08917538353175955	0.6242276847223168	0.1783507670635191	0.1783507670635191	0.1783507670635191
7	Chi2Merge$_G$ $M_t st$	0.31064134823142936	2.1744894376200055	0.31064134823142936	0.31064134823142936	0.31064134823142936

Table 13: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G$ $M_t st$	1.3252201160275027E-6	9.27650393156565E-6	8.819713980833182E-6	9.27650393156565E-6	1.9223920161661072E-6
2	ID3$_G$ $M_t st$	3.9520611558949284E-4	0.0023688951095923727	0.002254671289111094	0.0013825382176352319	5.729668795210498E-4
3	ChiMerge$_G$ $M_t st$	0.008142251638196924	0.040053671641860134	0.0387160272771543	0.018895553063398074	0.011673463931628113
4	CAIM$_G$ $M_t st$	0.011971349129236327	0.04703235938783468	0.04565949608290375	0.020855717511036764	0.01706949526458474
5	USD$_G$ $M_t st$	0.01583653373815987	0.04703235938783468	0.04750960121447961	0.022100700571322518	0.022456951016731983
6	Fayyad$_G$ $M_t st$	0.08917538353175955	0.17039851803548278	0.1783507670635191	0.10324483613393587	0.1145426911199315
7	Chi2Merge$_G$ $M_t st$	0.31064134823142936	0.3106413482314294	0.31064134823142936	0.3106413482314294	0.31064134823142936