# Output tables for the test of Multiple comparisons.

June 12, 2025

## 1 Average rankings of Friedman test

Average ranks obtained by applying the Friedman procedure

Friedman statistic considering reduction performance (distributed according to chi-square with 15 degrees of freedom: 335.85049.

P-value computed by Friedman Test: 1.3431300516231204E-10.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 15 and 525 degrees of freedom: 57.579208.

P-value computed by Iman and Daveport Test: -2.220446049250313E-16.

| Algorithm | Ranking |
|---|---|
| BestCyclicAssignment | 12.75 |
| BestNearest | 7.125 |
| CLARA | 9.6389 |
| CoefficientPropagation | 11.6111 |
| CyclicAssignment | 14.1667 |
| Farthest-First | 3.4444 |
| KMEANS | 4.5139 |
| NearestByCustomer | 6.9444 |
| NearestByDepot | 10.9722 |
| PAM | 9.0556 |
| Parallel | 6.9444 |
| RandomByElement | 16 |
| Simplified | 6.0833 |
| Sweep | 6.1528 |
| ThreeCriteriaClustering | 3.3472 |
| UPGMC | 7.25 |

Table 1: Average Rankings of the algorithms

## 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 $\alpha = 0.05$

Nemenyi's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000417$.
Holm's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.00082$.
Shaffer's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000417$.

| $i$ | algorithms | $z = (R_0 - R_i)/SE$ | $p$ | Holm |
|---|---|---|---|---|
| 120 | RandomByElement vs. ThreeCriteriaClustering | 11.275305 | 0 | 0.000417 |
| 119 | Farthest-First vs. RandomByElement | 11.188667 | 0 | 0.00042 |
| 118 | KMEANS vs. RandomByElement | 10.23565 | 0 | 0.000424 |
| 117 | CyclicAssignment vs. ThreeCriteriaClustering | 9.641562 | 0 | 0.000427 |
| 116 | CyclicAssignment vs. Farthest-First | 9.554924 | 0 | 0.000431 |
| 115 | RandomByElement vs. Simplified | 8.837067 | 0 | 0.000435 |
| 114 | RandomByElement vs. Sweep | 8.775183 | 0 | 0.000439 |
| 113 | CyclicAssignment vs. KMEANS | 8.601907 | 0 | 0.000442 |
| 112 | BestCyclicAssignment vs. ThreeCriteriaClustering | 8.379124 | 0 | 0.000446 |
| 111 | BestCyclicAssignment vs. Farthest-First | 8.292486 | 0 | 0.00045 |
| 110 | NearestByCustomer vs. RandomByElement | 8.069702 | 0 | 0.000455 |
| 109 | Parallel vs. RandomByElement | 8.069702 | 0 | 0.000459 |
| 108 | BestNearest vs. RandomByElement | 7.908803 | 0 | 0.000463 |
| 107 | RandomByElement vs. UPGMC | 7.797412 | 0 | 0.000467 |
| 106 | CoefficientPropagation vs. ThreeCriteriaClustering | 7.364222 | 0 | 0.000472 |
| 105 | BestCyclicAssignment vs. KMEANS | 7.339469 | 0 | 0.000476 |
| 104 | CoefficientPropagation vs. Farthest-First | 7.277584 | 0 | 0.000481 |
| 103 | CyclicAssignment vs. Simplified | 7.203323 | 0 | 0.000485 |
| 102 | CyclicAssignment vs. Sweep | 7.141439 | 0 | 0.00049 |
| 101 | NearestByDepot vs. ThreeCriteriaClustering | 6.794888 | 0 | 0.000495 |
| 100 | Farthest-First vs. NearestByDepot | 6.70825 | 0 | 0.0005 |
| 99 | CyclicAssignment vs. NearestByCustomer | 6.435959 | 0 | 0.000505 |
| 98 | CyclicAssignment vs. Parallel | 6.435959 | 0 | 0.00051 |
| 97 | CoefficientPropagation vs. KMEANS | 6.324567 | 0 | 0.000515 |
| 96 | BestNearest vs. CyclicAssignment | 6.27506 | 0 | 0.000521 |
| 95 | PAM vs. RandomByElement | 6.188422 | 0 | 0.000526 |
| 94 | CyclicAssignment vs. UPGMC | 6.163668 | 0 | 0.000532 |
| 93 | BestCyclicAssignment vs. Simplified | 5.940885 | 0 | 0.000538 |
| 92 | BestCyclicAssignment vs. Sweep | 5.879001 | 0 | 0.000543 |
| 91 | KMEANS vs. NearestByDepot | 5.755233 | 0 | 0.000549 |
| 90 | CLARA vs. RandomByElement | 5.668595 | 0 | 0.000556 |
| 89 | CLARA vs. ThreeCriteriaClustering | 5.60671 | 0 | 0.000562 |
| 88 | CLARA vs. Farthest-First | 5.520073 | 0 | 0.000568 |
| 87 | BestCyclicAssignment vs. NearestByCustomer | 5.173521 | 0 | 0.000575 |
| 86 | BestCyclicAssignment vs. Parallel | 5.173521 | 0 | 0.000581 |
| 85 | PAM vs. ThreeCriteriaClustering | 5.086883 | 0 | 0.000588 |
| 84 | BestCyclicAssignment vs. BestNearest | 5.012622 | 0.000001 | 0.000595 |
| 83 | Farthest-First vs. PAM | 5.000245 | 0.000001 | 0.000602 |
| 82 | CoefficientPropagation vs. Simplified | 4.925984 | 0.000001 | 0.00061 |
| 81 | BestCyclicAssignment vs. UPGMC | 4.90123 | 0.000001 | 0.000617 |
| 80 | CoefficientPropagation vs. Sweep | 4.8641 | 0.000001 | 0.000625 |
| 79 | CLARA vs. KMEANS | 4.567056 | 0.000005 | 0.000633 |
| 78 | CyclicAssignment vs. PAM | 4.554679 | 0.000005 | 0.000641 |
| 77 | NearestByDepot vs. RandomByElement | 4.480418 | 0.000007 | 0.000649 |
| 76 | NearestByDepot vs. Simplified | 4.356649 | 0.000013 | 0.000658 |
| 75 | NearestByDepot vs. Sweep | 4.294765 | 0.000017 | 0.000667 |
| 74 | CoefficientPropagation vs. NearestByCustomer | 4.15862 | 0.000032 | 0.000676 |
| 73 | CoefficientPropagation vs. Parallel | 4.15862 | 0.000032 | 0.000685 |
| 72 | KMEANS vs. PAM | 4.047228 | 0.000052 | 0.000694 |
| 71 | CLARA vs. CyclicAssignment | 4.034851 | 0.000055 | 0.000704 |
| 70 | BestNearest vs. CoefficientPropagation | 3.997721 | 0.000064 | 0.000714 |
| 69 | CoefficientPropagation vs. RandomByElement | 3.911083 | 0.000092 | 0.000725 |
| 68 | CoefficientPropagation vs. UPGMC | 3.886329 | 0.000102 | 0.000735 |
| 67 | NearestByCustomer vs. NearestByDepot | 3.589285 | 0.000332 | 0.000746 |
| 66 | NearestByDepot vs. Parallel | 3.589285 | 0.000332 | 0.000758 |
| 65 | ThreeCriteriaClustering vs. UPGMC | 3.477893 | 0.000505 | 0.000769 |
| 64 | BestNearest vs. NearestByDepot | 3.428386 | 0.000607 | 0.000781 |
| 63 | Farthest-First vs. UPGMC | 3.391255 | 0.000696 | 0.000794 |
| 62 | BestNearest vs. ThreeCriteriaClustering | 3.366502 | 0.000761 | 0.000806 |
| 61 | NearestByDepot vs. UPGMC | 3.316994 | 0.00091 | 0.00082 |
| 60 | BestCyclicAssignment vs. PAM | 3.292241 | 0.000994 | 0.000833 |
| 59 | BestNearest vs. Farthest-First | 3.279864 | 0.001039 | 0.000847 |
| 58 | NearestByCustomer vs. ThreeCriteriaClustering | 3.205603 | 0.001348 | 0.000862 |
| 57 | Parallel vs. ThreeCriteriaClustering | 3.205603 | 0.001348 | 0.000877 |
| 56 | CLARA vs. Simplified | 3.168472 | 0.001532 | 0.000893 |
| 55 | Farthest-First vs. NearestByCustomer | 3.118965 | 0.001815 | 0.000909 |
| 54 | Farthest-First vs. Parallel | 3.118965 | 0.001815 | 0.000926 |
| 53 | CLARA vs. Sweep | 3.106588 | 0.001893 | 0.000943 |
| 52 | BestCyclicAssignment vs. RandomByElement | 2.896182 | 0.003777 | 0.000962 |
| 51 | CyclicAssignment vs. NearestByDepot | 2.846674 | 0.004418 | 0.00098 |
| 50 | BestCyclicAssignment vs. CLARA | 2.772413 | 0.005564 | 0.001 |
| 49 | PAM vs. Simplified | 2.648645 | 0.008082 | 0.00102 |
| 48 | PAM vs. Sweep | 2.58676 | 0.009688 | 0.001042 |
| 47 | Sweep vs. ThreeCriteriaClustering | 2.500123 | 0.012415 | 0.001064 |
| 46 | Simplified vs. ThreeCriteriaClustering | 2.438238 | 0.014759 | 0.001087 |
| 45 | KMEANS vs. UPGMC | 2.438238 | 0.014759 | 0.001111 |
| 44 | Farthest-First vs. Sweep | 2.413485 | 0.015801 | 0.001136 |
| 43 | CLARA vs. NearestByCustomer | 2.401108 | 0.016346 | 0.001163 |
| 42 | CLARA vs. Parallel | 2.401108 | 0.016346 | 0.00119 |
| 41 | Farthest-First vs. Simplified | 2.3516 | 0.018693 | 0.00122 |
| 40 | BestNearest vs. KMEANS | 2.326847 | 0.019973 | 0.00125 |
| 39 | CoefficientPropagation vs. PAM | 2.277339 | 0.022766 | 0.001282 |
| 38 | CoefficientPropagation vs. CyclicAssignment | 2.277339 | 0.022766 | 0.001316 |
| 37 | BestNearest vs. CLARA | 2.240209 | 0.025077 | 0.001351 |
| 36 | KMEANS vs. NearestByCustomer | 2.165948 | 0.030315 | 0.001389 |
| 35 | KMEANS vs. Parallel | 2.165948 | 0.030315 | 0.001429 |
| 34 | CLARA vs. UPGMC | 2.128817 | 0.033269 | 0.001471 |
| 33 | NearestByCustomer vs. PAM | 1.88128 | 0.059934 | 0.001515 |
| 32 | PAM vs. Parallel | 1.88128 | 0.059934 | 0.001563 |

## 2.2 P-values for $\alpha = 0.10$

Nemenyi's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000833$.

Holm's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.001887$.

Shaffer's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000833$.

| $i$ | algorithms | $z = (R_0 - R_i)/SE$ | $p$ | Holm |
|---|---|---|---|---|
| 120 | RandomByElement vs. ThreeCriteriaClustering | 11.275305 | 0 | 0.000833 |
| 119 | Farthest-First vs. RandomByElement | 11.188667 | 0 | 0.00084 |
| 118 | KMEANS vs. RandomByElement | 10.23565 | 0 | 0.000847 |
| 117 | CyclicAssignment vs. ThreeCriteriaClustering | 9.641562 | 0 | 0.000855 |
| 116 | CyclicAssignment vs. Farthest-First | 9.554924 | 0 | 0.000862 |
| 115 | RandomByElement vs. Simplified | 8.837067 | 0 | 0.00087 |
| 114 | RandomByElement vs. Sweep | 8.775183 | 0 | 0.000877 |
| 113 | CyclicAssignment vs. KMEANS | 8.601907 | 0 | 0.000885 |
| 112 | BestCyclicAssignment vs. ThreeCriteriaClustering | 8.379124 | 0 | 0.000893 |
| 111 | BestCyclicAssignment vs. Farthest-First | 8.292486 | 0 | 0.000901 |
| 110 | NearestByCustomer vs. RandomByElement | 8.069702 | 0 | 0.000909 |
| 109 | Parallel vs. RandomByElement | 8.069702 | 0 | 0.000917 |
| 108 | BestNearest vs. RandomByElement | 7.908803 | 0 | 0.000926 |
| 107 | RandomByElement vs. UPGMC | 7.797412 | 0 | 0.000935 |
| 106 | CoefficientPropagation vs. ThreeCriteriaClustering | 7.364222 | 0 | 0.000943 |
| 105 | BestCyclicAssignment vs. KMEANS | 7.339469 | 0 | 0.000952 |
| 104 | CoefficientPropagation vs. Farthest-First | 7.277584 | 0 | 0.000962 |
| 103 | CyclicAssignment vs. Simplified | 7.203323 | 0 | 0.000971 |
| 102 | CyclicAssignment vs. Sweep | 7.141439 | 0 | 0.00098 |
| 101 | NearestByDepot vs. ThreeCriteriaClustering | 6.794888 | 0 | 0.00099 |
| 100 | Farthest-First vs. NearestByDepot | 6.70825 | 0 | 0.001 |
| 99 | CyclicAssignment vs. NearestByCustomer | 6.435959 | 0 | 0.00101 |
| 98 | CyclicAssignment vs. Parallel | 6.435959 | 0 | 0.00102 |
| 97 | CoefficientPropagation vs. KMEANS | 6.324567 | 0 | 0.001031 |
| 96 | BestNearest vs. CyclicAssignment | 6.27506 | 0 | 0.001042 |
| 95 | PAM vs. RandomByElement | 6.188422 | 0 | 0.001053 |
| 94 | CyclicAssignment vs. UPGMC | 6.163668 | 0 | 0.001064 |
| 93 | BestCyclicAssignment vs. Simplified | 5.940885 | 0 | 0.001075 |
| 92 | BestCyclicAssignment vs. Sweep | 5.879001 | 0 | 0.001087 |
| 91 | KMEANS vs. NearestByDepot | 5.755233 | 0 | 0.001099 |
| 90 | CLARA vs. RandomByElement | 5.668595 | 0 | 0.001111 |
| 89 | CLARA vs. ThreeCriteriaClustering | 5.60671 | 0 | 0.001124 |
| 88 | CLARA vs. Farthest-First | 5.520073 | 0 | 0.001136 |
| 87 | BestCyclicAssignment vs. NearestByCustomer | 5.173521 | 0 | 0.001149 |
| 86 | BestCyclicAssignment vs. Parallel | 5.173521 | 0 | 0.001163 |
| 85 | PAM vs. ThreeCriteriaClustering | 5.086883 | 0 | 0.001176 |
| 84 | BestCyclicAssignment vs. BestNearest | 5.012622 | 0.000001 | 0.00119 |
| 83 | Farthest-First vs. PAM | 5.000245 | 0.000001 | 0.001205 |
| 82 | CoefficientPropagation vs. Simplified | 4.925984 | 0.000001 | 0.00122 |
| 81 | BestCyclicAssignment vs. UPGMC | 4.90123 | 0.000001 | 0.001235 |
| 80 | CoefficientPropagation vs. Sweep | 4.8641 | 0.000001 | 0.00125 |
| 79 | CLARA vs. KMEANS | 4.567056 | 0.000005 | 0.001266 |
| 78 | CyclicAssignment vs. PAM | 4.554679 | 0.000005 | 0.001282 |
| 77 | NearestByDepot vs. RandomByElement | 4.480418 | 0.000007 | 0.001299 |
| 76 | NearestByDepot vs. Simplified | 4.356649 | 0.000013 | 0.001316 |
| 75 | NearestByDepot vs. Sweep | 4.294765 | 0.000017 | 0.001333 |
| 74 | CoefficientPropagation vs. NearestByCustomer | 4.15862 | 0.000032 | 0.001351 |
| 73 | CoefficientPropagation vs. Parallel | 4.15862 | 0.000032 | 0.00137 |
| 72 | KMEANS vs. PAM | 4.047228 | 0.000052 | 0.001389 |
| 71 | CLARA vs. CyclicAssignment | 4.034851 | 0.000055 | 0.001408 |
| 70 | BestNearest vs. CoefficientPropagation | 3.997721 | 0.000064 | 0.001429 |
| 69 | CoefficientPropagation vs. RandomByElement | 3.911083 | 0.000092 | 0.001449 |
| 68 | CoefficientPropagation vs. UPGMC | 3.886329 | 0.000102 | 0.001471 |
| 67 | NearestByCustomer vs. NearestByDepot | 3.589285 | 0.000332 | 0.001493 |
| 66 | NearestByDepot vs. Parallel | 3.589285 | 0.000332 | 0.001515 |
| 65 | ThreeCriteriaClustering vs. UPGMC | 3.477893 | 0.000505 | 0.001538 |
| 64 | BestNearest vs. NearestByDepot | 3.428386 | 0.000607 | 0.001563 |
| 63 | Farthest-First vs. UPGMC | 3.391255 | 0.000696 | 0.001587 |
| 62 | BestNearest vs. ThreeCriteriaClustering | 3.366502 | 0.000761 | 0.001613 |
| 61 | NearestByDepot vs. UPGMC | 3.316994 | 0.00091 | 0.001639 |
| 60 | BestCyclicAssignment vs. PAM | 3.292241 | 0.000994 | 0.001667 |
| 59 | BestNearest vs. Farthest-First | 3.279864 | 0.001039 | 0.001695 |
| 58 | NearestByCustomer vs. ThreeCriteriaClustering | 3.205603 | 0.001348 | 0.001724 |
| 57 | Parallel vs. ThreeCriteriaClustering | 3.205603 | 0.001348 | 0.001754 |
| 56 | CLARA vs. Simplified | 3.168472 | 0.001532 | 0.001786 |
| 55 | Farthest-First vs. NearestByCustomer | 3.118965 | 0.001815 | 0.001818 |
| 54 | Farthest-First vs. Parallel | 3.118965 | 0.001815 | 0.001852 |
| 53 | CLARA vs. Sweep | 3.106588 | 0.001893 | 0.001887 |
| 52 | BestCyclicAssignment vs. RandomByElement | 2.896182 | 0.003777 | 0.001923 |
| 51 | CyclicAssignment vs. NearestByDepot | 2.846674 | 0.004418 | 0.001961 |
| 50 | BestCyclicAssignment vs. CLARA | 2.772413 | 0.005564 | 0.002 |
| 49 | PAM vs. Simplified | 2.648645 | 0.008082 | 0.002041 |
| 48 | PAM vs. Sweep | 2.58676 | 0.009688 | 0.002083 |
| 47 | Sweep vs. ThreeCriteriaClustering | 2.500123 | 0.012415 | 0.002128 |
| 46 | Simplified vs. ThreeCriteriaClustering | 2.438238 | 0.014759 | 0.002174 |
| 45 | KMEANS vs. UPGMC | 2.438238 | 0.014759 | 0.002222 |
| 44 | Farthest-First vs. Sweep | 2.413485 | 0.015801 | 0.002273 |
| 43 | CLARA vs. NearestByCustomer | 2.401108 | 0.016346 | 0.002326 |
| 42 | CLARA vs. Parallel | 2.401108 | 0.016346 | 0.002381 |
| 41 | Farthest-First vs. Simplified | 2.3516 | 0.018693 | 0.002439 |
| 40 | BestNearest vs. KMEANS | 2.326847 | 0.019973 | 0.0025 |
| 39 | CoefficientPropagation vs. PAM | 2.277339 | 0.022766 | 0.002564 |
| 38 | CoefficientPropagation vs. CyclicAssignment | 2.277339 | 0.022766 | 0.002632 |
| 37 | BestNearest vs. CLARA | 2.240209 | 0.025077 | 0.002703 |
| 36 | KMEANS vs. NearestByCustomer | 2.165948 | 0.030315 | 0.002778 |
| 35 | KMEANS vs. Parallel | 2.165948 | 0.030315 | 0.002857 |
| 34 | CLARA vs. UPGMC | 2.128817 | 0.033269 | 0.002941 |
| 33 | NearestByCustomer vs. PAM | 1.88128 | 0.059934 | 0.00303 |
| 32 | PAM vs. Parallel | 1.88128 | 0.059934 | 0.003125 |

## 2.3 Adjusted p-values

| i | hypothesis | unadjusted $p$ | $p_{Neme}$ | $p_{Holm}$ | $p_{Sha}$ |
|---|---|---|---|---|---|
| 1 | RandomByElement vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 2 | Farthest-First vs .RandomByElement | 0 | 0 | 0 | 0 |
| 3 | KMEANS vs .RandomByElement | 0 | 0 | 0 | 0 |
| 4 | CyclicAssignment vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 5 | CyclicAssignment vs .Farthest-First | 0 | 0 | 0 | 0 |
| 6 | RandomByElement vs .Simplified | 0 | 0 | 0 | 0 |
| 7 | RandomByElement vs .Sweep | 0 | 0 | 0 | 0 |
| 8 | CyclicAssignment vs .KMEANS | 0 | 0 | 0 | 0 |
| 9 | BestCyclicAssignment vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 10 | BestCyclicAssignment vs .Farthest-First | 0 | 0 | 0 | 0 |
| 11 | NearestByCustomer vs .RandomByElement | 0 | 0 | 0 | 0 |
| 12 | Parallel vs .RandomByElement | 0 | 0 | 0 | 0 |
| 13 | BestNearest vs .RandomByElement | 0 | 0 | 0 | 0 |
| 14 | RandomByElement vs .UPGMC | 0 | 0 | 0 | 0 |
| 15 | CoefficientPropagation vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 16 | BestCyclicAssignment vs .KMEANS | 0 | 0 | 0 | 0 |
| 17 | CoefficientPropagation vs .Farthest-First | 0 | 0 | 0 | 0 |
| 18 | CyclicAssignment vs .Simplified | 0 | 0 | 0 | 0 |
| 19 | CyclicAssignment vs .Sweep | 0 | 0 | 0 | 0 |
| 20 | NearestByDepot vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 21 | Farthest-First vs .NearestByDepot | 0 | 0 | 0 | 0 |
| 22 | CyclicAssignment vs .NearestByCustomer | 0 | 0 | 0 | 0 |
| 23 | CyclicAssignment vs .Parallel | 0 | 0 | 0 | 0 |
| 24 | CoefficientPropagation vs .KMEANS | 0 | 0 | 0 | 0 |
| 25 | BestNearest vs .CyclicAssignment | 0 | 0 | 0 | 0 |
| 26 | PAM vs .RandomByElement | 0 | 0 | 0 | 0 |
| 27 | CyclicAssignment vs .UPGMC | 0 | 0 | 0 | 0 |
| 28 | BestCyclicAssignment vs .Simplified | 0 | 0 | 0 | 0 |
| 29 | BestCyclicAssignment vs .Sweep | 0 | 0 | 0 | 0 |
| 30 | KMEANS vs .NearestByDepot | 0 | 0.000001 | 0.000001 | 0.00000 |
| 31 | CLARA vs .RandomByElement | 0 | 0.000002 | 0.000001 | 0.00000 |
| 32 | CLARA vs .ThreeCriteriaClustering | 0 | 0.000002 | 0.000002 | 0.00000 |
| 33 | CLARA vs .Farthest-First | 0 | 0.000004 | 0.000003 | 0.00000 |
| 34 | BestCyclicAssignment vs .NearestByCustomer | 0 | 0.000028 | 0.00002 | 0.0000 |
| 35 | BestCyclicAssignment vs .Parallel | 0 | 0.000028 | 0.00002 | 0.0000 |
| 36 | PAM vs .ThreeCriteriaClustering | 0 | 0.000044 | 0.000031 | 0.00003 |
| 37 | BestCyclicAssignment vs .BestNearest | 0.000001 | 0.000064 | 0.000045 | 0.0000 |
| 38 | Farthest-First vs .PAM | 0.000001 | 0.000069 | 0.000048 | 0.0000 |
| 39 | CoefficientPropagation vs .Simplified | 0.000001 | 0.000101 | 0.000069 | 0.00000 |
| 40 | BestCyclicAssignment vs .UPGMC | 0.000001 | 0.000114 | 0.000077 | 0.00007 |
| 41 | CoefficientPropagation vs .Sweep | 0.000001 | 0.000138 | 0.000092 | 0.00009 |
| 42 | CLARA vs .KMEANS | 0.000005 | 0.000594 | 0.000391 | 0.00039 |
| 43 | CyclicAssignment vs .PAM | 0.000005 | 0.00063 | 0.000409 | 0.00040 |
| 44 | NearestByDepot vs .RandomByElement | 0.000007 | 0.000894 | 0.000574 | 0.00053 |
| 45 | NearestByDepot vs .Simplified | 0.000013 | 0.001585 | 0.001004 | 0.00093 |
| 46 | NearestByDepot vs .Sweep | 0.000017 | 0.002099 | 0.001312 | 0.00128 |
| 47 | CoefficientPropagation vs .NearestByCustomer | 0.000032 | 0.003842 | 0.002369 | 0.00230 |
| 48 | CoefficientPropagation vs .Parallel | 0.000032 | 0.003842 | 0.002369 | 0.00230 |
| 49 | KMEANS vs .PAM | 0.000052 | 0.006219 | 0.003732 | 0.00373 |
| 50 | CLARA vs .CyclicAssignment | 0.000055 | 0.006556 | 0.003879 | 0.0037 |
| 51 | BestNearest vs .CoefficientPropagation | 0.000064 | 0.007675 | 0.004477 | 0.0044 |
| 52 | CoefficientPropagation vs .RandomByElement | 0.000092 | 0.011026 | 0.00634 | 0.0063 |
| 53 | CoefficientPropagation vs .UPGMC | 0.000102 | 0.012213 | 0.00692 | 0.0069 |
| 54 | NearestByCustomer vs .NearestByDepot | 0.000332 | 0.03979 | 0.022216 | 0.0222 |
| 55 | NearestByDepot vs .Parallel | 0.000332 | 0.03979 | 0.022216 | 0.0222 |
| 56 | ThreeCriteriaClustering vs .UPGMC | 0.000505 | 0.060645 | 0.032849 | 0.0328 |
| 57 | BestNearest vs .NearestByDepot | 0.000607 | 0.072862 | 0.03886 | 0.0370 |
| 58 | Farthest-First vs .UPGMC | 0.000696 | 0.083488 | 0.043831 | 0.0424 |
| 59 | BestNearest vs .ThreeCriteriaClustering | 0.000761 | 0.091354 | 0.047199 | 0.0464 |
| 60 | NearestByDepot vs .UPGMC | 0.00091 | 0.10919 | 0.055505 | 0.0555 |
| 61 | BestCyclicAssignment vs .PAM | 0.000994 | 0.119271 | 0.059636 | 0.0596 |
| 62 | BestNearest vs .Farthest-First | 0.001039 | 0.124629 | 0.061276 | 0.0612 |
| 63 | NearestByCustomer vs .ThreeCriteriaClustering | 0.001348 | 0.161736 | 0.078172 | 0.0781 |
| 64 | Parallel vs .ThreeCriteriaClustering | 0.001348 | 0.161736 | 0.078172 | 0.0781 |
| 65 | CLARA vs .Simplified | 0.001532 | 0.183891 | 0.085816 | 0.0858 |
| 66 | Farthest-First vs .NearestByCustomer | 0.001815 | 0.217785 | 0.099818 | 0.0998 |
| 67 | Farthest-First vs .Parallel | 0.001815 | 0.217785 | 0.099818 | 0.0998 |
| 68 | CLARA vs .Sweep | 0.001893 | 0.227112 | 0.100308 | 0.0998 |
| 69 | BestCyclicAssignment vs .RandomByElement | 0.003777 | 0.453281 | 0.196422 | 0.1964 |
| 70 | CyclicAssignment vs .NearestByDepot | 0.004418 | 0.530143 | 0.225311 | 0.2253 |
| 71 | BestCyclicAssignment vs .CLARA | 0.005564 | 0.667708 | 0.278212 | 0.2726 |
| 72 | PAM vs .Simplified | 0.008082 | 0.969783 | 0.395995 | 0.3959 |
| 73 | PAM vs .Sweep | 0.009688 | 1.162595 | 0.465038 | 0.4650 |
| 74 | Sweep vs .ThreeCriteriaClustering | 0.012415 | 1.489804 | 0.583507 | 0.5835 |
| 75 | Simplified vs .ThreeCriteriaClustering | 0.014759 | 1.771085 | 0.678916 | 0.6789 |
| 76 | KMEANS vs .UPGMC | 0.014759 | 1.771085 | 0.678916 | 0.6789 |
| 77 | Farthest-First vs .Sweep | 0.015801 | 1.896095 | 0.695235 | 0.6952 |
| 78 | CLARA vs .NearestByCustomer | 0.016346 | 1.961462 | 0.702857 | 0.7028 |
| 79 | CLARA vs .Parallel | 0.016346 | 1.961462 | 0.702857 | 0.7028 |
| 80 | Farthest-First vs .Simplified | 0.018693 | 2.243141 | 0.766407 | 0.7664 |
| 81 | BestNearest vs .KMEANS | 0.019973 | 2.396811 | 0.798937 | 0.7989 |
| 82 | CoefficientPropagation vs .PAM | 0.022766 | 2.731916 | 0.887873 | 0.8878 |
| 83 | CoefficientPropagation vs .CyclicAssignment | 0.022766 | 2.731916 | 0.887873 | 0.8878 |
| 84 | BestNearest vs .CLARA | 0.025077 | 3.009284 | 0.927863 | 0.9278 |
| 85 | KMEANS vs .NearestByCustomer | 0.030315 | 3.637822 | 1.091346 | 1.0913 |
| 86 | KMEANS vs .Parallel | 0.030315 | 3.637822 | 1.091346 | 1.0913 |
| 87 | CLARA vs .UPGMC | 0.033269 | 3.992326 | 1.131159 | 1.1311 |
| 88 | NearestByCustomer vs .PAM | 0.059934 | 7.192055 | 1.977815 | 1.9778 |
| 89 | PAM vs .Parallel | 0.059934 | 7.192055 | 1.977815 | 1.9778 |