# Output tables for the test of Multiple comparisons.

June 6, 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 17 degrees of freedom: 288.096842.

P-value computed by Friedman Test: 1.3832923695389354E-10.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 17 and 408 degrees of freedom: 50.505221.

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

| Algorithm | Ranking |
|---|---|
| BestCyclicAssignment | 9.96 |
| BestNearest | 6.6 |
| CLARA | 10.64 |
| CoefficientPropagation | 8.36 |
| CyclicAssignment | 14.12 |
| Farthest-First | 5.62 |
| KMEANS | 6.28 |
| NearestByCustomer | 8.22 |
| NearestByDepot | 10.96 |
| PAM | 18 |
| Parallel | 8.22 |
| RandomByElement | 16.74 |
| RandomSequentialCyclic | 13.8 |
| SequentialCyclic | 13.84 |
| Simplified | 6.88 |
| Sweep | 6.42 |
| ThreeCriteriaClustering | 4.98 |
| UPGMC | 1.36 |

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 $\leq 0.000327$.
Holm's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000581$.
Shaffer's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000327$.

| $i$ | algorithms | $z = (R_0 - R_i)/SE$ | $p$ | Holm |
|---|---|---|---|---|
| 153 | PAM vs. UPGMC | 11.020109 | 0 | 0.000327 |
| 152 | RandomByElement vs. UPGMC | 10.185654 | 0 | 0.000329 |
| 151 | PAM vs. ThreeCriteriaClustering | 8.622706 | 0 | 0.000331 |
| 150 | CyclicAssignment vs. UPGMC | 8.450516 | 0 | 0.000333 |
| 149 | SequentialCyclic vs. UPGMC | 8.265082 | 0 | 0.000336 |
| 148 | RandomSequentialCyclic vs. UPGMC | 8.238591 | 0 | 0.000338 |
| 147 | Farthest-First vs. PAM | 8.198855 | 0 | 0.00034 |
| 146 | RandomByElement vs. ThreeCriteriaClustering | 7.78825 | 0 | 0.000342 |
| 145 | KMEANS vs. PAM | 7.76176 | 0 | 0.000345 |
| 144 | PAM vs. Sweep | 7.669042 | 0 | 0.000347 |
| 143 | BestNearest vs. PAM | 7.549834 | 0 | 0.00035 |
| 142 | PAM vs. Simplified | 7.3644 | 0 | 0.000352 |
| 141 | Farthest-First vs. RandomByElement | 7.3644 | 0 | 0.000355 |
| 140 | KMEANS vs. RandomByElement | 6.927304 | 0 | 0.000357 |
| 139 | RandomByElement vs. Sweep | 6.834587 | 0 | 0.00036 |
| 138 | BestNearest vs. RandomByElement | 6.715379 | 0 | 0.000362 |
| 137 | RandomByElement vs. Simplified | 6.529945 | 0 | 0.000365 |
| 136 | NearestByCustomer vs. PAM | 6.476963 | 0 | 0.000368 |
| 135 | PAM vs. Parallel | 6.476963 | 0 | 0.00037 |
| 134 | CoefficientPropagation vs. PAM | 6.384246 | 0 | 0.000373 |
| 133 | NearestByDepot vs. UPGMC | 6.357755 | 0 | 0.000376 |
| 132 | CLARA vs. UPGMC | 6.14583 | 0 | 0.000379 |
| 131 | CyclicAssignment vs. ThreeCriteriaClustering | 6.053113 | 0 | 0.000382 |
| 130 | SequentialCyclic vs. ThreeCriteriaClustering | 5.867678 | 0 | 0.000385 |
| 129 | RandomSequentialCyclic vs. ThreeCriteriaClustering | 5.841188 | 0 | 0.000388 |
| 128 | BestCyclicAssignment vs. UPGMC | 5.695489 | 0 | 0.000391 |
| 127 | NearestByCustomer vs. RandomByElement | 5.642508 | 0 | 0.000394 |
| 126 | Parallel vs. RandomByElement | 5.642508 | 0 | 0.000397 |
| 125 | CyclicAssignment vs. Farthest-First | 5.629263 | 0 | 0.0004 |
| 124 | CoefficientPropagation vs. RandomByElement | 5.549791 | 0 | 0.000403 |
| 123 | Farthest-First vs. SequentialCyclic | 5.443828 | 0 | 0.000407 |
| 122 | Farthest-First vs. RandomSequentialCyclic | 5.417337 | 0 | 0.00041 |
| 121 | BestCyclicAssignment vs. PAM | 5.32462 | 0 | 0.000413 |
| 120 | CyclicAssignment vs. KMEANS | 5.192167 | 0 | 0.000417 |
| 119 | CyclicAssignment vs. Sweep | 5.09945 | 0 | 0.00042 |
| 118 | KMEANS vs. SequentialCyclic | 5.006732 | 0.000001 | 0.000424 |
| 117 | BestNearest vs. CyclicAssignment | 4.980242 | 0.000001 | 0.000427 |
| 116 | KMEANS vs. RandomSequentialCyclic | 4.980242 | 0.000001 | 0.000431 |
| 115 | SequentialCyclic vs. Sweep | 4.914015 | 0.000001 | 0.000435 |
| 114 | RandomSequentialCyclic vs. Sweep | 4.887524 | 0.000001 | 0.000439 |
| 113 | CLARA vs. PAM | 4.874279 | 0.000001 | 0.000442 |
| 112 | BestNearest vs. SequentialCyclic | 4.794807 | 0.000002 | 0.000446 |
| 111 | CyclicAssignment vs. Simplified | 4.794807 | 0.000002 | 0.00045 |
| 110 | BestNearest vs. RandomSequentialCyclic | 4.768316 | 0.000002 | 0.000455 |
| 109 | NearestByDepot vs. PAM | 4.662354 | 0.000003 | 0.000459 |
| 108 | CoefficientPropagation vs. UPGMC | 4.635863 | 0.000004 | 0.000463 |
| 107 | SequentialCyclic vs. Simplified | 4.609373 | 0.000004 | 0.000467 |
| 106 | RandomSequentialCyclic vs. Simplified | 4.582882 | 0.000005 | 0.000472 |
| 105 | NearestByCustomer vs. UPGMC | 4.543146 | 0.000006 | 0.000476 |
| 104 | Parallel vs. UPGMC | 4.543146 | 0.000006 | 0.000481 |
| 103 | BestCyclicAssignment vs. RandomByElement | 4.490165 | 0.000007 | 0.000485 |
| 102 | CLARA vs. RandomByElement | 4.039824 | 0.000053 | 0.00049 |
| 101 | NearestByDepot vs. ThreeCriteriaClustering | 3.960352 | 0.000075 | 0.000495 |
| 100 | CyclicAssignment vs. NearestByCustomer | 3.90737 | 0.000093 | 0.0005 |
| 99 | CyclicAssignment vs. Parallel | 3.90737 | 0.000093 | 0.000505 |
| 98 | NearestByDepot vs. RandomByElement | 3.827899 | 0.000129 | 0.00051 |
| 97 | CoefficientPropagation vs. CyclicAssignment | 3.814653 | 0.000136 | 0.000515 |
| 96 | CLARA vs. ThreeCriteriaClustering | 3.748427 | 0.000178 | 0.000521 |
| 95 | NearestByCustomer vs. SequentialCyclic | 3.721936 | 0.000198 | 0.000526 |
| 94 | Parallel vs. SequentialCyclic | 3.721936 | 0.000198 | 0.000532 |
| 93 | NearestByCustomer vs. RandomSequentialCyclic | 3.695445 | 0.00022 | 0.000538 |
| 92 | Parallel vs. RandomSequentialCyclic | 3.695445 | 0.00022 | 0.000543 |
| 91 | Simplified vs. UPGMC | 3.655709 | 0.000256 | 0.000549 |
| 90 | CoefficientPropagation vs. SequentialCyclic | 3.629219 | 0.000284 | 0.000556 |
| 89 | CoefficientPropagation vs. RandomSequentialCyclic | 3.602728 | 0.000315 | 0.000562 |
| 88 | Farthest-First vs. NearestByDepot | 3.536501 | 0.000405 | 0.000568 |
| 87 | BestNearest vs. UPGMC | 3.470275 | 0.00052 | 0.000575 |
| 86 | Sweep vs. UPGMC | 3.351067 | 0.000805 | 0.000581 |
| 85 | CLARA vs. Farthest-First | 3.324576 | 0.000886 | 0.000588 |
| 84 | BestCyclicAssignment vs. ThreeCriteriaClustering | 3.298086 | 0.000973 | 0.000595 |
| 83 | KMEANS vs. UPGMC | 3.25835 | 0.001121 | 0.000602 |
| 82 | KMEANS vs. NearestByDepot | 3.099406 | 0.001939 | 0.00061 |
| 81 | NearestByDepot vs. Sweep | 3.006688 | 0.002641 | 0.000617 |
| 80 | CLARA vs. KMEANS | 2.887481 | 0.003883 | 0.000625 |
| 79 | BestNearest vs. NearestByDepot | 2.887481 | 0.003883 | 0.000633 |
| 78 | BestCyclicAssignment vs. Farthest-First | 2.874235 | 0.00405 | 0.000641 |
| 77 | Farthest-First vs. UPGMC | 2.821254 | 0.004784 | 0.000649 |
| 76 | CLARA vs. Sweep | 2.794763 | 0.005194 | 0.000658 |
| 75 | PAM vs. RandomSequentialCyclic | 2.781518 | 0.005411 | 0.000667 |
| 74 | PAM vs. SequentialCyclic | 2.755027 | 0.005869 | 0.000676 |
| 73 | BestCyclicAssignment vs. CyclicAssignment | 2.755027 | 0.005869 | 0.000685 |
| 72 | NearestByDepot vs. Simplified | 2.702046 | 0.006891 | 0.000694 |
| 71 | BestNearest vs. CLARA | 2.675555 | 0.007461 | 0.000704 |
| 70 | CyclicAssignment vs. PAM | 2.569593 | 0.010182 | 0.000714 |
| 69 | BestCyclicAssignment vs. SequentialCyclic | 2.569593 | 0.010182 | 0.000725 |
| 68 | BestCyclicAssignment vs. RandomSequentialCyclic | 2.543102 | 0.010987 | 0.000735 |
| 67 | CLARA vs. Simplified | 2.490121 | 0.01277 | 0.000746 |
| 66 | BestCyclicAssignment vs. KMEANS | 2.43714 | 0.014804 | 0.000758 |
| 65 | ThreeCriteriaClustering vs. UPGMC | 2.397404 | 0.016512 | 0.000769 |

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

Nemenyi's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000654$.

Holm's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.00122$.

Shaffer's procedure rejects those hypotheses that have an unadjusted p-value $\leq 0.000654$.

| $i$ | algorithms | $z = (R_0 - R_i)/SE$ | $p$ | Holm |
|---|---|---|---|---|
| 153 | PAM vs. UPGMC | 11.020109 | 0 | 0.000654 |
| 152 | RandomByElement vs. UPGMC | 10.185654 | 0 | 0.000658 |
| 151 | PAM vs. ThreeCriteriaClustering | 8.622706 | 0 | 0.000662 |
| 150 | CyclicAssignment vs. UPGMC | 8.450516 | 0 | 0.000667 |
| 149 | SequentialCyclic vs. UPGMC | 8.265082 | 0 | 0.000671 |
| 148 | RandomSequentialCyclic vs. UPGMC | 8.238591 | 0 | 0.000676 |
| 147 | Farthest-First vs. PAM | 8.198855 | 0 | 0.00068 |
| 146 | RandomByElement vs. ThreeCriteriaClustering | 7.78825 | 0 | 0.000685 |
| 145 | KMEANS vs. PAM | 7.76176 | 0 | 0.00069 |
| 144 | PAM vs. Sweep | 7.669042 | 0 | 0.000694 |
| 143 | BestNearest vs. PAM | 7.549834 | 0 | 0.000699 |
| 142 | PAM vs. Simplified | 7.3644 | 0 | 0.000704 |
| 141 | Farthest-First vs. RandomByElement | 7.3644 | 0 | 0.000709 |
| 140 | KMEANS vs. RandomByElement | 6.927304 | 0 | 0.000714 |
| 139 | RandomByElement vs. Sweep | 6.834587 | 0 | 0.000719 |
| 138 | BestNearest vs. RandomByElement | 6.715379 | 0 | 0.000725 |
| 137 | RandomByElement vs. Simplified | 6.529945 | 0 | 0.00073 |
| 136 | NearestByCustomer vs. PAM | 6.476963 | 0 | 0.000735 |
| 135 | PAM vs. Parallel | 6.476963 | 0 | 0.000741 |
| 134 | CoefficientPropagation vs. PAM | 6.384246 | 0 | 0.000746 |
| 133 | NearestByDepot vs. UPGMC | 6.357755 | 0 | 0.000752 |
| 132 | CLARA vs. UPGMC | 6.14583 | 0 | 0.000758 |
| 131 | CyclicAssignment vs. ThreeCriteriaClustering | 6.053113 | 0 | 0.000763 |
| 130 | SequentialCyclic vs. ThreeCriteriaClustering | 5.867678 | 0 | 0.000769 |
| 129 | RandomSequentialCyclic vs. ThreeCriteriaClustering | 5.841188 | 0 | 0.000775 |
| 128 | BestCyclicAssignment vs. UPGMC | 5.695489 | 0 | 0.000781 |
| 127 | NearestByCustomer vs. RandomByElement | 5.642508 | 0 | 0.000787 |
| 126 | Parallel vs. RandomByElement | 5.642508 | 0 | 0.000794 |
| 125 | CyclicAssignment vs. Farthest-First | 5.629263 | 0 | 0.0008 |
| 124 | CoefficientPropagation vs. RandomByElement | 5.549791 | 0 | 0.000806 |
| 123 | Farthest-First vs. SequentialCyclic | 5.443828 | 0 | 0.000813 |
| 122 | Farthest-First vs. RandomSequentialCyclic | 5.417337 | 0 | 0.00082 |
| 121 | BestCyclicAssignment vs. PAM | 5.32462 | 0 | 0.000826 |
| 120 | CyclicAssignment vs. KMEANS | 5.192167 | 0 | 0.000833 |
| 119 | CyclicAssignment vs. Sweep | 5.09945 | 0 | 0.00084 |
| 118 | KMEANS vs. SequentialCyclic | 5.006732 | 0.000001 | 0.000847 |
| 117 | BestNearest vs. CyclicAssignment | 4.980242 | 0.000001 | 0.000855 |
| 116 | KMEANS vs. RandomSequentialCyclic | 4.980242 | 0.000001 | 0.000862 |
| 115 | SequentialCyclic vs. Sweep | 4.914015 | 0.000001 | 0.00087 |
| 114 | RandomSequentialCyclic vs. Sweep | 4.887524 | 0.000001 | 0.000877 |
| 113 | CLARA vs. PAM | 4.874279 | 0.000001 | 0.000885 |
| 112 | BestNearest vs. SequentialCyclic | 4.794807 | 0.000002 | 0.000893 |
| 111 | CyclicAssignment vs. Simplified | 4.794807 | 0.000002 | 0.000901 |
| 110 | BestNearest vs. RandomSequentialCyclic | 4.768316 | 0.000002 | 0.000909 |
| 109 | NearestByDepot vs. PAM | 4.662354 | 0.000003 | 0.000917 |
| 108 | CoefficientPropagation vs. UPGMC | 4.635863 | 0.000004 | 0.000926 |
| 107 | SequentialCyclic vs. Simplified | 4.609373 | 0.000004 | 0.000935 |
| 106 | RandomSequentialCyclic vs. Simplified | 4.582882 | 0.000005 | 0.000943 |
| 105 | NearestByCustomer vs. UPGMC | 4.543146 | 0.000006 | 0.000952 |
| 104 | Parallel vs. UPGMC | 4.543146 | 0.000006 | 0.000962 |
| 103 | BestCyclicAssignment vs. RandomByElement | 4.490165 | 0.000007 | 0.000971 |
| 102 | CLARA vs. RandomByElement | 4.039824 | 0.000053 | 0.00098 |
| 101 | NearestByDepot vs. ThreeCriteriaClustering | 3.960352 | 0.000075 | 0.00099 |
| 100 | CyclicAssignment vs. NearestByCustomer | 3.90737 | 0.000093 | 0.001 |
| 99 | CyclicAssignment vs. Parallel | 3.90737 | 0.000093 | 0.00101 |
| 98 | NearestByDepot vs. RandomByElement | 3.827899 | 0.000129 | 0.00102 |
| 97 | CoefficientPropagation vs. CyclicAssignment | 3.814653 | 0.000136 | 0.001031 |
| 96 | CLARA vs. ThreeCriteriaClustering | 3.748427 | 0.000178 | 0.001042 |
| 95 | NearestByCustomer vs. SequentialCyclic | 3.721936 | 0.000198 | 0.001053 |
| 94 | Parallel vs. SequentialCyclic | 3.721936 | 0.000198 | 0.001064 |
| 93 | NearestByCustomer vs. RandomSequentialCyclic | 3.695445 | 0.00022 | 0.001075 |
| 92 | Parallel vs. RandomSequentialCyclic | 3.695445 | 0.00022 | 0.001087 |
| 91 | Simplified vs. UPGMC | 3.655709 | 0.000256 | 0.001099 |
| 90 | CoefficientPropagation vs. SequentialCyclic | 3.629219 | 0.000284 | 0.001111 |
| 89 | CoefficientPropagation vs. RandomSequentialCyclic | 3.602728 | 0.000315 | 0.001124 |
| 88 | Farthest-First vs. NearestByDepot | 3.536501 | 0.000405 | 0.001136 |
| 87 | BestNearest vs. UPGMC | 3.470275 | 0.00052 | 0.001149 |
| 86 | Sweep vs. UPGMC | 3.351067 | 0.000805 | 0.001163 |
| 85 | CLARA vs. Farthest-First | 3.324576 | 0.000886 | 0.001176 |
| 84 | BestCyclicAssignment vs. ThreeCriteriaClustering | 3.298086 | 0.000973 | 0.00119 |
| 83 | KMEANS vs. UPGMC | 3.25835 | 0.001121 | 0.001205 |
| 82 | KMEANS vs. NearestByDepot | 3.099406 | 0.001939 | 0.00122 |
| 81 | NearestByDepot vs. Sweep | 3.006688 | 0.002641 | 0.001235 |
| 80 | CLARA vs. KMEANS | 2.887481 | 0.003883 | 0.00125 |
| 79 | BestNearest vs. NearestByDepot | 2.887481 | 0.003883 | 0.001266 |
| 78 | BestCyclicAssignment vs. Farthest-First | 2.874235 | 0.00405 | 0.001282 |
| 77 | Farthest-First vs. UPGMC | 2.821254 | 0.004784 | 0.001299 |
| 76 | CLARA vs. Sweep | 2.794763 | 0.005194 | 0.001316 |
| 75 | PAM vs. RandomSequentialCyclic | 2.781518 | 0.005411 | 0.001333 |
| 74 | PAM vs. SequentialCyclic | 2.755027 | 0.005869 | 0.001351 |
| 73 | BestCyclicAssignment vs. CyclicAssignment | 2.755027 | 0.005869 | 0.00137 |
| 72 | NearestByDepot vs. Simplified | 2.702046 | 0.006891 | 0.001389 |
| 71 | BestNearest vs. CLARA | 2.675555 | 0.007461 | 0.001408 |
| 70 | CyclicAssignment vs. PAM | 2.569593 | 0.010182 | 0.001429 |
| 69 | BestCyclicAssignment vs. SequentialCyclic | 2.569593 | 0.010182 | 0.001449 |
| 68 | BestCyclicAssignment vs. RandomSequentialCyclic | 2.543102 | 0.010987 | 0.001471 |
| 67 | CLARA vs. Simplified | 2.490121 | 0.01277 | 0.001493 |
| 66 | BestCyclicAssignment vs. KMEANS | 2.43714 | 0.014804 | 0.001515 |
| 65 | ThreeCriteriaClustering vs. UPGMC | 2.397404 | 0.016512 | 0.001538 |

## 2.3 Adjusted p-values

| i | hypothesis | unadjusted $p$ | $p_{Neme}$ | $p_{Holm}$ | $p_{Sh}$ |
|---|---|---|---|---|---|
| 1 | PAM vs .UPGMC | 0 | 0 | 0 | 0 |
| 2 | RandomByElement vs .UPGMC | 0 | 0 | 0 | 0 |
| 3 | PAM vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 4 | CyclicAssignment vs .UPGMC | 0 | 0 | 0 | 0 |
| 5 | SequentialCyclic vs .UPGMC | 0 | 0 | 0 | 0 |
| 6 | RandomSequentialCyclic vs .UPGMC | 0 | 0 | 0 | 0 |
| 7 | Farthest-First vs .PAM | 0 | 0 | 0 | 0 |
| 8 | RandomByElement vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 9 | KMEANS vs .PAM | 0 | 0 | 0 | 0 |
| 10 | PAM vs .Sweep | 0 | 0 | 0 | 0 |
| 11 | BestNearest vs .PAM | 0 | 0 | 0 | 0 |
| 12 | PAM vs .Simplified | 0 | 0 | 0 | 0 |
| 13 | Farthest-First vs .RandomByElement | 0 | 0 | 0 | 0 |
| 14 | KMEANS vs .RandomByElement | 0 | 0 | 0 | 0 |
| 15 | RandomByElement vs .Sweep | 0 | 0 | 0 | 0 |
| 16 | BestNearest vs .RandomByElement | 0 | 0 | 0 | 0 |
| 17 | RandomByElement vs .Simplified | 0 | 0 | 0 | 0 |
| 18 | NearestByCustomer vs .PAM | 0 | 0 | 0 | 0 |
| 19 | PAM vs .Parallel | 0 | 0 | 0 | 0 |
| 20 | CoefficientPropagation vs .PAM | 0 | 0 | 0 | 0 |
| 21 | NearestByDepot vs .UPGMC | 0 | 0 | 0 | 0 |
| 22 | CLARA vs .UPGMC | 0 | 0 | 0 | 0 |
| 23 | CyclicAssignment vs .ThreeCriteriaClustering | 0 | 0 | 0 | 0 |
| 24 | SequentialCyclic vs .ThreeCriteriaClustering | 0 | 0.000001 | 0.000001 | 0.000 |
| 25 | RandomSequentialCyclic vs .ThreeCriteriaClustering | 0 | 0.000001 | 0.000001 | 0.000 |
| 26 | BestCyclicAssignment vs .UPGMC | 0 | 0.000002 | 0.000002 | 0.000 |
| 27 | NearestByCustomer vs .RandomByElement | 0 | 0.000003 | 0.000002 | 0.000 |
| 28 | Parallel vs .RandomByElement | 0 | 0.000003 | 0.000002 | 0.000 |
| 29 | CyclicAssignment vs .Farthest-First | 0 | 0.000003 | 0.000002 | 0.000 |
| 30 | CoefficientPropagation vs .RandomByElement | 0 | 0.000004 | 0.000004 | 0.000 |
| 31 | Farthest-First vs .SequentialCyclic | 0 | 0.000008 | 0.000006 | 0.000 |
| 32 | Farthest-First vs .RandomSequentialCyclic | 0 | 0.000009 | 0.000007 | 0.000 |
| 33 | BestCyclicAssignment vs .PAM | 0 | 0.000015 | 0.000012 | 0.000 |
| 34 | CyclicAssignment vs .KMEANS | 0 | 0.000032 | 0.000025 | 0.000 |
| 35 | CyclicAssignment vs .Sweep | 0 | 0.000052 | 0.000041 | 0.000 |
| 36 | KMEANS vs .SequentialCyclic | 0.000001 | 0.000085 | 0.000065 | 0.000 |
| 37 | BestNearest vs .CyclicAssignment | 0.000001 | 0.000097 | 0.000074 | 0.000 |
| 38 | KMEANS vs .RandomSequentialCyclic | 0.000001 | 0.000097 | 0.000074 | 0.000 |
| 39 | SequentialCyclic vs .Sweep | 0.000001 | 0.000137 | 0.000103 | 0.000 |
| 40 | RandomSequentialCyclic vs .Sweep | 0.000001 | 0.000156 | 0.000116 | 0.000 |
| 41 | CLARA vs .PAM | 0.000001 | 0.000167 | 0.000123 | 0.000 |
| 42 | BestNearest vs .SequentialCyclic | 0.000002 | 0.000249 | 0.000182 | 0.000 |
| 43 | CyclicAssignment vs .Simplified | 0.000002 | 0.000249 | 0.000182 | 0.000 |
| 44 | BestNearest vs .RandomSequentialCyclic | 0.000002 | 0.000284 | 0.000204 | 0.000 |
| 45 | NearestByDepot vs .PAM | 0.000003 | 0.000478 | 0.000341 | 0.000 |
| 46 | CoefficientPropagation vs .UPGMC | 0.000004 | 0.000544 | 0.000384 | 0.000 |
| 47 | SequentialCyclic vs .Simplified | 0.000004 | 0.000618 | 0.000432 | 0.000 |
| 48 | RandomSequentialCyclic vs .Simplified | 0.000005 | 0.000702 | 0.000486 | 0.000 |
| 49 | NearestByCustomer vs .UPGMC | 0.000006 | 0.000848 | 0.000582 | 0.000 |
| 50 | Parallel vs .UPGMC | 0.000006 | 0.000848 | 0.000582 | 0.000 |
| 51 | BestCyclicAssignment vs .RandomByElement | 0.000007 | 0.001089 | 0.000733 | 0.000 |
| 52 | CLARA vs .RandomByElement | 0.000053 | 0.008184 | 0.005456 | 0.005 |
| 53 | NearestByDepot vs .ThreeCriteriaClustering | 0.000075 | 0.01145 | 0.007559 | 0.007 |
| 54 | CyclicAssignment vs .NearestByCustomer | 0.000093 | 0.014276 | 0.009331 | 0.009 |
| 55 | CyclicAssignment vs .Parallel | 0.000093 | 0.014276 | 0.009331 | 0.009 |
| 56 | NearestByDepot vs .RandomByElement | 0.000129 | 0.019774 | 0.012666 | 0.012 |
| 57 | CoefficientPropagation vs .CyclicAssignment | 0.000136 | 0.020865 | 0.013228 | 0.013 |
| 58 | CLARA vs .ThreeCriteriaClustering | 0.000178 | 0.027226 | 0.017083 | 0.016 |
| 59 | NearestByCustomer vs .SequentialCyclic | 0.000198 | 0.030248 | 0.018782 | 0.018 |
| 60 | Parallel vs .SequentialCyclic | 0.000198 | 0.030248 | 0.018782 | 0.018 |
| 61 | NearestByCustomer vs .RandomSequentialCyclic | 0.00022 | 0.033584 | 0.020414 | 0.020 |
| 62 | Parallel vs .RandomSequentialCyclic | 0.00022 | 0.033584 | 0.020414 | 0.020 |
| 63 | Simplified vs .UPGMC | 0.000256 | 0.03924 | 0.023339 | 0.023 |
| 64 | CoefficientPropagation vs .SequentialCyclic | 0.000284 | 0.043495 | 0.025585 | 0.025 |
| 65 | CoefficientPropagation vs .RandomSequentialCyclic | 0.000315 | 0.048179 | 0.028026 | 0.027 |
| 66 | Farthest-First vs .NearestByDepot | 0.000405 | 0.062036 | 0.035681 | 0.035 |
| 67 | BestNearest vs .UPGMC | 0.00052 | 0.079549 | 0.045234 | 0.043 |
| 68 | Sweep vs .UPGMC | 0.000805 | 0.123166 | 0.069231 | 0.067 |
| 69 | CLARA vs .Farthest-First | 0.000886 | 0.135486 | 0.07527 | 0.074 |
| 70 | BestCyclicAssignment vs .ThreeCriteriaClustering | 0.000973 | 0.14894 | 0.081771 | 0.081 |
| 71 | KMEANS vs .UPGMC | 0.001121 | 0.171455 | 0.093012 | 0.091 |
| 72 | KMEANS vs .NearestByDepot | 0.001939 | 0.296681 | 0.159006 | 0.159 |
| 73 | NearestByDepot vs .Sweep | 0.002641 | 0.404089 | 0.213929 | 0.213 |
| 74 | CLARA vs .KMEANS | 0.003883 | 0.594161 | 0.310673 | 0.310 |
| 75 | BestNearest vs .NearestByDepot | 0.003883 | 0.594161 | 0.310673 | 0.310 |
| 76 | BestCyclicAssignment vs .Farthest-First | 0.00405 | 0.619661 | 0.315906 | 0.315 |
| 77 | Farthest-First vs .UPGMC | 0.004784 | 0.731896 | 0.36834 | 0.363 |
| 78 | CLARA vs .Sweep | 0.005194 | 0.794647 | 0.394727 | 0.394 |
| 79 | PAM vs .RandomSequentialCyclic | 0.005411 | 0.827812 | 0.40579 | 0.394 |
| 80 | PAM vs .SequentialCyclic | 0.005869 | 0.897915 | 0.434286 | 0.428 |
| 81 | BestCyclicAssignment vs .CyclicAssignment | 0.005869 | 0.897915 | 0.434286 | 0.428 |
| 82 | NearestByDepot vs .Simplified | 0.006891 | 1.054388 | 0.496182 | 0.496 |
| 83 | BestNearest vs .CLARA | 0.007461 | 1.141465 | 0.529699 | 0.522 |
| 84 | CyclicAssignment vs .PAM | 0.010182 | 1.557817 | 0.712727 | 0.712 |
| 85 | BestCyclicAssignment vs .SequentialCyclic | 0.010182 | 1.557817 | 0.712727 | 0.712 |
| 86 | BestCyclicAssignment vs .RandomSequentialCyclic | 0.010987 | 1.681059 | 0.747137 | 0.747 |
| 87 | CLARA vs .Simplified | 0.01277 | 1.953805 | 0.855588 | 0.855 |
| 88 | BestCyclicAssignment vs .KMEANS | 0.014804 | 2.265007 | 0.977062 | 0.977 |
| 89 | ThreeCriteriaClustering vs .UPGMC | 0.016512 | 2.526294 | 1.073262 | 1.073 |