# Output tables for 1xN statistical comparisons.

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## 1 Average rankings of Friedman test

Average ranks obtained by each method in the Friedman test.

| IGD | Average ranking value | Final rank | HVD | Average ranking value | Final rank |
|---|---|---|---|---|---|
| MOEA/D-HPMS | 3.2692 | 3 | MOEA/D-HPMS | 3.9231 | 3 |
| MOEA/D-MoE | 4.5385 | 5 | MOEA/D-MoE | 5.1538 | 6 |
| MOEA/D-IEC | 2.7308 | 2 | MOEA/D-IEC | 2.4615 | 2 |
| MOEA/D-SVR | 5.1538 | 6 | MOEA/D-SVR | 4.3077 | 5 |
| MRCDMO | 4.0769 | 4 | MRCDMO | 3.8462 | 4 |
| MOEA/D-HSS | 1.2308 | 1 | MOEA/D-HSS | 1.3077 | 1 |

Table 1: Average Rankings of the algorithms (Friedman)

Friedman statistic (distributed according to chi-square with 5 degrees of freedom): 36.923077.
P-value computed by Friedman Test: 0.000001.

## 2 Post hoc comparison (Friedman)

P-values obtained in by applying post hoc methods over the results of Friedman procedure.

| $i$ | algorithm | $z = (R_0 - R_i)/SE$ | $p$ |
|---|---|---|---|
| 5 | MOEA/D-SVR | 5.346253 | 0 |
| 4 | MOEA/D-MoE | 4.507625 | 0.000007 |
| 3 | MRCDMO | 3.878654 | 0.000105 |
| 2 | MOEA/D-HPMS | 2.777955 | 0.00547 |
| 1 | MOEA/D-IEC | 2.044155 | 0.040938 |

Table 2: Post Hoc comparison Table for $\alpha = 0.05$ (FRIEDMAN)

# 3  Adjusted P-Values (Friedman)

Adjusted P-values obtained through the application of the post hoc methods (Friedman).

| i | algorithm | unadjusted $p$ |
|---|-----------|----------------|
| 1 | MOEA/D-SVR | 0 |
| 2 | MOEA/D-MoE | 0.000007 |
| 3 | MRCDMO | 0.000105 |
| 4 | MOEA/D-HPMS | 0.00547 |
| 5 | MOEA/D-IEC | 0.040938 |

Table 3: Adjusted $p$-values (FRIEDMAN) (I)

| i | algorithm | unadjusted $p$ |
|---|-----------|----------------|
| 1 | MOEA/D-SVR | 0 |
| 2 | MOEA/D-MoE | 0.000007 |
| 3 | MRCDMO | 0.000105 |
| 4 | MOEA/D-HPMS | 0.00547 |
| 5 | MOEA/D-IEC | 0.040938 |

Table 4: Adjusted $p$-values (FRIEDMAN) (II)