"C:\Program Files\Java\jdk-11.0.2\bin\java.exe" "-javaagent:D:\intellijUltimate\IntelliJ IDEA 2019.2.3\lib\idea\_rt.jar=50419:D:\intellijUltimate\IntelliJ IDEA 2019.2.3\bin" -Dfile.encoding=UTF-8 -classpath E:\jMetal\jMetal-master\jmetal-exec\target\classes;E:\jMetal\jMetal-master\jmetal-core\target\classes;C:\Users\Eason\.m2\repository\org\apache\maven\reporting\maven-reporting-api\3.0\maven-reporting-api-3.0.jar;C:\Users\Eason\.m2\repository\org\apache\maven\doxia\doxia-sink-api\1.0\doxia-sink-api-1.0.jar;C:\Users\Eason\.m2\repository\org\apache\commons\commons-lang3\3.3.2\commons-lang3-3.3.2.jar;C:\Users\Eason\.m2\repository\org\apache\commons\commons-collections4\4.2\commons-collections4-4.2.jar;C:\Users\Eason\.m2\repository\commons-io\commons-io\2.4\commons-io-2.4.jar;C:\Users\Eason\.m2\repository\org\hamcrest\hamcrest-all\1.3\hamcrest-all-1.3.jar;C:\Users\Eason\.m2\repository\org\apache\commons\commons-math3\3.6.1\commons-math3-3.6.1.jar;C:\Users\Eason\.m2\repository\nz\ac\waikato\cms\weka\weka-stable\3.8.1\weka-stable-3.8.1.jar;C:\Users\Eason\.m2\repository\nz\ac\waikato\cms\weka\thirdparty\java-cup-11b\2015.03.26\java-cup-11b-2015.03.26.jar;C:\Users\Eason\.m2\repository\nz\ac\waikato\cms\weka\thirdparty\java-cup-11b-runtime\2015.03.26\java-cup-11b-runtime-2015.03.26.jar;C:\Users\Eason\.m2\repository\nz\ac\waikato\cms\weka\thirdparty\bounce\0.18\bounce-0.18.jar;C:\Users\Eason\.m2\repository\com\googlecode\matrix-toolkits-java\mtj\1.0.4\mtj-1.0.4.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-osx-x86\_64\1.1\netlib-native\_ref-osx-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\native\_ref-java\1.1\native\_ref-java-1.1.jar;C:\Users\Eason\.m2\repository\com\github\fommil\jniloader\1.1\jniloader-1.1.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-linux-x86\_64\1.1\netlib-native\_ref-linux-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-linux-i686\1.1\netlib-native\_ref-linux-i686-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-win-x86\_64\1.1\netlib-native\_ref-win-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-win-i686\1.1\netlib-native\_ref-win-i686-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_ref-linux-armhf\1.1\netlib-native\_ref-linux-armhf-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-osx-x86\_64\1.1\netlib-native\_system-osx-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\native\_system-java\1.1\native\_system-java-1.1.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-linux-x86\_64\1.1\netlib-native\_system-linux-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-linux-i686\1.1\netlib-native\_system-linux-i686-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-linux-armhf\1.1\netlib-native\_system-linux-armhf-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-win-x86\_64\1.1\netlib-native\_system-win-x86\_64-1.1-natives.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\netlib-native\_system-win-i686\1.1\netlib-native\_system-win-i686-1.1-natives.jar;C:\Users\Eason\.m2\repository\net\sourceforge\f2j\arpack\_combined\_all\0.1\arpack\_combined\_all-0.1.jar;C:\Users\Eason\.m2\repository\com\googlecode\netlib-java\netlib-java\1.1\netlib-java-1.1.jar;C:\Users\Eason\.m2\repository\com\github\fommil\netlib\core\1.1\core-1.1.jar;E:\jMetal\jMetal-master\jmetal-algorithm\target\classes;C:\Users\Eason\.m2\repository\com\fuzzylite\jfuzzylite\5.0\jfuzzylite-5.0.jar;E:\jMetal\jMetal-master\jmetal-problem\target\classes;C:\Users\Eason\.m2\repository\org\knowm\xchart\xchart\3.2.2\xchart-3.2.2.jar;C:\Users\Eason\.m2\repository\de\erichseifert\vectorgraphics2d\VectorGraphics2D\0.11\VectorGraphics2D-0.11.jar org.uma.jmetal.runner.multiobjective.Exercise3exec

2019-11-06 08:06:08.958 INFO: Loggers configured with null [org.uma.jmetal.util.JMetalLogger configureLoggers]

2019-11-06 08:06:08.995 INFO: Total execution time: 2132ms [org.uma.jmetal.runner.multiobjective.NSGAIIRunner custNSGAIIRunner]

2019-11-06 08:06:09.007 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:06:09.007 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:06:09.008 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:06:09.069 INFO:

Hypervolume (N) : 0.9999999999999858

Hypervolume : 0.9999999999999858

Epsilon (N) : 1.4210854715202004E-14

Epsilon : 1.4210854715202004E-14

GD (N) : 1.7407581574472908

GD : 1.7407581574472908

IGD (N) : 0.02944002365111455

IGD : 0.02944002365111455

IGD+ (N) : 1.4210854715202004E-17

IGD+ : 1.4210854715202004E-17

Spread (N) : 0.957443189027758

Spread : 0.957443189027758

Error ratio : 1.0

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

NSGAII

i = Algorithm3, j or k = Algorithm1

p(i,j):7.30540786547499

i = Algorithm3, j or k = Algorithm2

p(i,j):-118.57713985248961

i = Algorithm1, j or k = Algorithm2

p(i,j):-135.68782070438382

i = Algorithm1, j or k = Algorithm3

p(i,j):1.4274418959866324

i = Algorithm2, j or k = Algorithm1

p(i,j):157.8003227448454

i = Algorithm2, j or k = Algorithm3

p(i,j):148.02697056763895

2019-11-06 08:07:05.257 INFO: Total execution time: 5697ms [org.uma.jmetal.runner.multiobjective.SPEA2Runner custSPEA2Runner]

2019-11-06 08:07:05.263 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:07:05.263 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:07:05.264 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:07:05.293 INFO:

Hypervolume (N) : 0.24999999997833555

Hypervolume : 0.24999999997833555

Epsilon (N) : 0.5000000000433289

Epsilon : 0.5000000000433289

GD (N) : 1.8094353044630918

GD : 1.8094353044630918

IGD (N) : 0.014137759535470805

IGD : 0.014137759535470805

IGD+ (N) : 0.1939119738256955

IGD+ : 0.1939119738256955

Spread (N) : 0.8511244681250897

Spread : 0.8511244681250897

Error ratio : 1.0

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

SPEA2

i = Algorithm3, j or k = Algorithm1

p(i,j):12.341453913946978

i = Algorithm3, j or k = Algorithm2

p(i,j):-118.16759694582426

i = Algorithm1, j or k = Algorithm2

p(i,j):-136.69562877734663

i = Algorithm1, j or k = Algorithm3

p(i,j):5.6089271140497345

i = Algorithm2, j or k = Algorithm1

p(i,j):149.45073393314334

i = Algorithm2, j or k = Algorithm3

p(i,j):147.01580053854198

2019-11-06 08:08:02.903 INFO: Total execution time: 7064ms [org.uma.jmetal.runner.multiobjective.IBEARunner custIBEARunner]

2019-11-06 08:08:02.909 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:02.909 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:02.910 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:02.919 INFO:

Hypervolume (N) : 0.0

Hypervolume : 0.0

Epsilon (N) : 7.347834215012562

Epsilon : 7.347834215012562

GD (N) : 1.3068909214453228

GD : 1.3068909214453228

IGD (N) : 0.3217973358760463

IGD : 0.3217973358760463

IGD+ (N) : 10.181147742959338

IGD+ : 10.181147742959338

Spread (N) : 0.6802780541168553

Spread : 0.6802780541168553

Error ratio : 1.0

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

IBEA

i = Algorithm3, j or k = Algorithm1

p(i,j):2.3615414874593625

i = Algorithm3, j or k = Algorithm2

p(i,j):-90.99112446250776

i = Algorithm1, j or k = Algorithm2

p(i,j):-84.84950788050702

i = Algorithm1, j or k = Algorithm3

p(i,j):1.7309489783244132

i = Algorithm2, j or k = Algorithm1

p(i,j):110.01733424834285

i = Algorithm2, j or k = Algorithm3

p(i,j):102.4042360404236

2019-11-06 08:08:52.625 INFO: Total execution time: 1543ms [org.uma.jmetal.runner.multiobjective.NSGAIIRunner custNSGAIIRunner]

2019-11-06 08:08:52.627 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:52.628 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:52.628 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:08:52.635 INFO:

Hypervolume (N) : 1.0

Hypervolume : 1.0

Epsilon (N) : 0.0

Epsilon : 0.0

GD (N) : 2.431870775158257

GD : 2.431870775158257

IGD (N) : 0.029440023651114852

IGD : 0.029440023651114852

IGD+ (N) : 0.0

IGD+ : 0.0

Spread (N) : 0.9392287811429445

Spread : 0.9392287811429445

Error ratio : 1.0

NSGAII

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

i = Algorithm3, j or k = Algorithm1

p(i,j):0.11539860577202887

i = Algorithm3, j or k = Algorithm2

p(i,j):-15.62265648679275

i = Algorithm1, j or k = Algorithm2

p(i,j):-13.939070217207345

i = Algorithm1, j or k = Algorithm3

p(i,j):0.11539860577202887

i = Algorithm2, j or k = Algorithm1

p(i,j):26.473360221214506

i = Algorithm2, j or k = Algorithm3

p(i,j):29.309109015243877

2019-11-06 08:09:20.154 INFO: Total execution time: 1521ms [org.uma.jmetal.runner.multiobjective.SPEA2Runner custSPEA2Runner]

2019-11-06 08:09:20.158 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:20.158 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:20.158 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:20.163 INFO:

Hypervolume (N) : 0.2499999992058477

Hypervolume : 0.2499999992058477

Epsilon (N) : 0.5000000015883046

Epsilon : 0.5000000015883046

GD (N) : 2.5440993154320064

GD : 2.5440993154320064

IGD (N) : 0.014137759517302683

IGD : 0.014137759517302683

IGD+ (N) : 0.1939119742783734

IGD+ : 0.1939119742783734

Spread (N) : 0.8400639318005674

Spread : 0.8400639318005674

Error ratio : 1.0

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

SPEA2

i = Algorithm3, j or k = Algorithm1

p(i,j):2.8421709430404007E-14

i = Algorithm3, j or k = Algorithm2

p(i,j):-21.841844735199786

i = Algorithm1, j or k = Algorithm2

p(i,j):-21.10416178565029

i = Algorithm1, j or k = Algorithm3

p(i,j):1.4210854715202004E-14

i = Algorithm2, j or k = Algorithm1

p(i,j):28.13400462252494

i = Algorithm2, j or k = Algorithm3

p(i,j):28.296570881155546

2019-11-06 08:09:49.863 INFO: Total execution time: 3691ms [org.uma.jmetal.runner.multiobjective.IBEARunner custIBEARunner]

2019-11-06 08:09:49.865 INFO: Random seed: 1572989766802 [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:49.866 INFO: Objectives values have been written to file FUN.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:49.866 INFO: Variables values have been written to file VAR.tsv [org.uma.jmetal.util.AbstractAlgorithmRunner printFinalSolutionSet]

2019-11-06 08:09:49.872 INFO:

Hypervolume (N) : 0.0

Hypervolume : 0.0

Epsilon (N) : 7.442859936493111

Epsilon : 7.442859936493111

GD (N) : 1.8195102673199397

GD : 1.8195102673199397

IGD (N) : 0.3218178279449363

IGD : 0.3218178279449363

IGD+ (N) : 10.18179589839173

IGD+ : 10.18179589839173

Spread (N) : 0.7043045042754544

Spread : 0.7043045042754544

Error ratio : 1.0

[org.uma.jmetal.util.AbstractAlgorithmRunner printQualityIndicators]

IBEA

i = Algorithm3, j or k = Algorithm1

p(i,j):7.105427357601002E-15

i = Algorithm3, j or k = Algorithm2

p(i,j):-8.1563826657273

i = Algorithm1, j or k = Algorithm2

p(i,j):-6.621942126259981

i = Algorithm1, j or k = Algorithm3

p(i,j):1.4210854715202004E-14

i = Algorithm2, j or k = Algorithm1

p(i,j):15.5255305524527

i = Algorithm2, j or k = Algorithm3

p(i,j):13.192006978982917

Process finished with exit code 0