ExpositoTOP

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

Class Documentation

3.1 es.ull.esit.utilities.BellmanFord Class Reference

Public Member Functions

- BellmanFord (int[ ][ ] distanceMatrix, int nodes, ArrayList< Integer > path)
- int[ ] getDistances ()
- int getValue ()
- void **solve** ()

3.1.1 Constructor & Destructor Documentation

3.1.1.1 BellmanFord()

```
es.ull.esit.utilities.BellmanFord.BellmanFord (
            int distanceMatrix[][],
            int nodes,
            ArrayList< Integer > path )  [inline]
```

Parameters

distanceMatrix	
nodes	
path	

3.1.2 Member Function Documentation

3.1.2.1 getDistances()

```
int[] es.ull.esit.utilities.BellmanFord.getDistances ( )  [inline]
```

Returns

3.1.2.2 getValue()

```
int es.ull.esit.utilities.BellmanFord.getValue ( )  [inline]
```

Returns

The documentation for this class was generated from the following file:

- src/main/java/es/ull/esit/utilities/BellmanFord.java

3.2 es.ull.esit.utilities.ExpositoUtilities Class Reference

Static Public Member Functions

- static void **printFile** (String file)
- static String **simplifyString** (String string)
- static double[ ][ ] **multiplyMatrices** (double a[ ][ ], double b[ ][ ])
- static void **writeTextToFile** (String file, String text) throws IOException
- static String **getFormat** (String string)
- static String **getFormat** (double value)
- static String **getFormat** (double value, int zeros)
- static String **getFormat** (String string, int width)
- static String **getFormat** (String string, int width, int alignment)
- static String **getFormat** (ArrayList< String > strings, int width)
- static String **getFormat** (ArrayList< Integer > strings)
- static String **getFormat** (String[ ] strings, int width)
- static String **getFormat** (String[ ][ ] matrixStrings, int width)
- static String **getFormat** (String[ ] strings)
- static String **getFormat** (String[ ] strings, int[ ] width)
- static String **getFormat** (String[ ] strings, int[ ] width, int[ ] alignment)
- static boolean **isInteger** (String str)
- static boolean **isDouble** (String str)
- static boolean **isAcyclic** (int[ ][ ] distanceMatrix)
- static boolean **thereIsPath** (int[ ][ ] distanceMatrix, int node)

Static Public Attributes

- static final int **DEFAULT_COLUMN_WIDTH** = 10
- static final int **ALIGNMENT_LEFT** = 1
- static final int **ALIGNMENT_RIGHT** = 2

The documentation for this class was generated from the following file:

- src/main/java/es/ull/esit/utilities/ExpositoUtilities.java

3.3 top.mainTOPTW Class Reference

Static Public Member Functions

- static void **main** (String[ ] args)

The documentation for this class was generated from the following file:

- src/main/java/top/mainTOPTW.java

3.4 es.ull.esit.utils.Pair< F, S > Class Template Reference

Public Member Functions

- **Pair** (F first, S second)
- boolean **equals** (Object o)
- int **hashCode** ()

Static Public Member Functions

- static< A, B > Pair< A, B > **create** (A a, B b)

Public Attributes

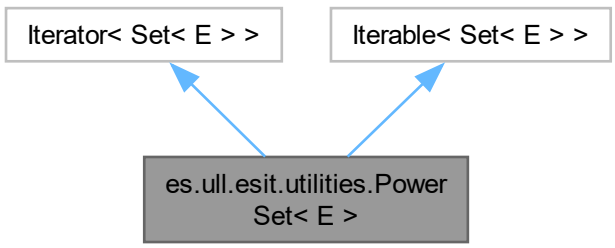
- final F **first**
- final S **second**

The documentation for this class was generated from the following file:

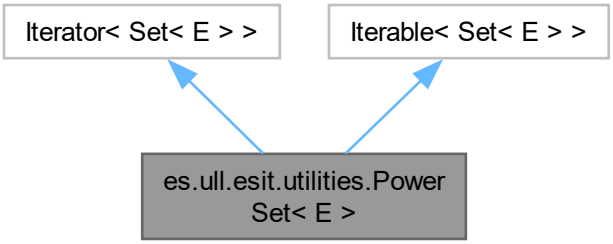
- src/main/java/es/ull/esit/utils/Pair.java

3.5 es.ull.esit.utilities.PowerSet< E > Class Template Reference

Inheritance diagram for es.ull.esit.utilities.PowerSet< E >:



Collaboration diagram for es.ull.esit.utilities.PowerSet< E >:



Public Member Functions

- **PowerSet** (Set< E > set)
- boolean **hasNext** ()
- Set< E > **next** ()
- void **remove** ()
- Iterator< Set< E > > **iterator** ()

The documentation for this class was generated from the following file:

- src/main/java/es/ull/esit/utilities/PowerSet.java

3.6 top.TOPTW Class Reference

Public Member Functions

- **TOPTW** (int nodes, int routes)
- boolean **isDepot** (int a)
- double **getDistance** (int[ ] route)
- double **getDistance** (ArrayList< Integer > route)
- double **getDistance** (ArrayList< Integer >[ ] routes)
- void **calculateDistanceMatrix** ()
- double **getMaxTimePerRoute** ()
- void **setMaxTimePerRoute** (double maxTimePerRoute)
- double **getMaxRoutes** ()
- void **setMaxRoutes** (double maxRoutes)
- int **getPOIs** ()
- double **getDistance** (int i, int j)
- double **getTime** (int i, int j)
- int **getNodes** ()
- void **setNodes** (int nodes)
- double **getX** (int index)
- void **setX** (int index, double x)
- double **getY** (int index)

- void **setY** (int index, double y)
- double **getScore** (int index)
- double[ ] **getScore** ()
- void **setScore** (int index, double score)
- double **getReadyTime** (int index)
- void **setReadyTime** (int index, double readyTime)
- double **getDueTime** (int index)
- void **setDueTime** (int index, double dueTime)
- double **getServiceTime** (int index)
- void **setServiceTime** (int index, double serviceTime)
- int **getVehicles** ()
- String **toString** ()
- int **addNode** ()
- int **addNodeDepot** ()

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTW.java

3.7 top.TOPTWEvaluator Class Reference

Public Member Functions

- void **evaluate** (TOPTWSolution solution)

Static Public Attributes

- static double **NO_EVALUATED** = -1.0

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTWEvaluator.java

3.8 top.TOPTWGRASP Class Reference

Public Member Functions

- **TOPTWGRASP** (TOPTWSolution sol)
- void **GRASP** (int maxIterations, int maxSizeRCL)
- int aleatorySelectionRCL (int maxTRCL)

  Genera una selección aleatoria segura dentro de un rango específico.
- int **fuzzySelectionBestFDRCL** (ArrayList< double[ ] > rcl)
- int **fuzzySelectionAlphaCutRCL** (ArrayList< double[ ] > rcl, double alpha)
- void **computeGreedySolution** (int maxSizeRCL)
- void **updateSolution** (double[ ] candidateSelected, ArrayList< ArrayList< Double > > departureTimes)
- ArrayList< double[ ] > **comprehensiveEvaluation** (ArrayList< Integer > customers, ArrayList< ArrayList< Double > > departureTimes)
- TOPTWSolution **getSolution** ()
- void **setSolution** (TOPTWSolution solution)
- int **getSolutionTime** ()
- void **setSolutionTime** (int solutionTime)
- double **getMaxScore** ()

Static Public Attributes

- static double **NO_EVALUATED** = -1.0

3.8.1 Member Function Documentation

3.8.1.1 aleatorySelectionRCL()

```
int top.TOPTWGRASP.aleatorySelectionRCL (
            int maxTRCL )  [inline]
```

Genera una selección aleatoria segura dentro de un rango específico.

Esta función utiliza la clase SecureRandom para generar un número aleatorio de forma segura. Se proporciona un valor máximo, y la función devuelve un número entre 0 (inclusive) y el valor máximo (exclusivo).

Parameters

maxTRCL	Valor máximo para la selección aleatoria. El rango va de 0 a maxTRCL-1.

Returns

Un número aleatorio seguro entre 0 (inclusive) y maxTRCL (exclusivo).

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTWGRASP.java

3.9 top.TOPTWReader Class Reference

Static Public Member Functions

- static TOPTW **readProblem** (String filePath)

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTWReader.java

3.10 top.TOPTWRoute Class Reference

Public Member Functions

- int **getPredeccesor** ()
- int **getSuccesor** ()
- int **getId** ()
- void **setPredeccesor** (int pre)
- void **setSuccesor** (int suc)
- void **setId** (int id)

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTWRoute.java

3.11 top.TOPTWSolution Class Reference

Public Member Functions

- **TOPTWSolution** (TOPTW problem)
- void **initSolution** ()
- boolean **isDepot** (int c)
- boolean **equals** (TOPTWSolution otherSolution)
- int **getAvailableVehicles** ()
- int **getCreatedRoutes** ()
- double **getDistance** (int x, int y)
- void **setAvailableVehicles** (int availableVehicles)
- int **getPredecessor** (int customer)
- int[ ] **getPredecessors** ()
- TOPTW **getProblem** ()
- double **getObjectiveFunctionValue** ()
- int **getPositionInRoute** (int customer)
- int **getSuccessor** (int customer)
- int[ ] **getSuccessors** ()
- int **getIndexRoute** (int index)
- double **getWaitingTime** (int customer)
- void **setObjectiveFunctionValue** (double objectiveFunctionValue)
- void **setPositionInRoute** (int customer, int position)
- void **setPredecessor** (int customer, int predecessor)
- void **setSuccessor** (int customer, int succesor)
- void **setWaitingTime** (int customer, int waitingTime)
- String **getInfoSolution** ()
- double **evaluateFitness** ()
- int **addRoute** ()
- double **printSolution** ()

Static Public Attributes

- static final int **NO_INITIALIZED** = -1

The documentation for this class was generated from the following file:

- src/main/java/top/TOPTWSolution.java

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