RTVRPTW

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Chapter 1

Namespace Documentation

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Classes

- class BellmanFord
- class ExpositoUtilities
- class PowerSet

1.2 Package es.ull.esit.utils

Classes

- class Pair

1.3 Package top

Classes

- class mainTOPTW
- class TOPTW
- class TOPTWEvaluator
- class TOPTWGRASP
- class TOPTWReader
- class TOPTWRoute
- class TOPTWSolution

Chapter 2

Class Documentation

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

Public Member Functions

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

2.1.1 Constructor & Destructor Documentation

2.1.1.1 BellmanFord()

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

Parameters

distanceMatrix	
nodes	
path	

2.1.2 Member Function Documentation

2.1.2.1 getDistances()

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

Returns

2.1.2.2 getValue()

```
int es.ull.esit.utilities.BellmanFord.getValue ( )
```

Returns

2.1.2.3 solve()

```
void es.ull.esit.utilities.BellmanFord.solve ( )
```

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

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

2.2 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

2.2.1 Member Function Documentation

2.2.1.1 getFormat() [1/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            ArrayList< Integer > strings )  [static]
```

2.2.1.2 getFormat() [2/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            ArrayList< String > strings,
            int width )  [static]
```

2.2.1.3 getFormat() [3/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            double value )  [static]
```

2.2.1.4 getFormat() [4/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            double value,
            int zeros )  [static]
```

2.2.1.5 getFormat() [5/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String string )  [static]
```

2.2.1.6 getFormat() [6/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String string,
            int width )  [static]
```

2.2.1.7 getFormat() [7/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String string,
            int width,
            int alignment )  [static]
```

2.2.1.8 getFormat() [8/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String[] strings )  [static]
```

2.2.1.9 getFormat() [9/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String[] strings,
            int width )  [static]
```

2.2.1.10 getFormat() [10/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String[] strings,
            int[] width )  [static]
```

2.2.1.11 getFormat() [11/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String[] strings,
            int[] width,
            int[] alignment )  [static]
```

2.2.1.12 getFormat() [12/12]

```
static String es.ull.esit.utilities.ExpositoUtilities.getFormat (
            String matrixStrings[][],
            int width )  [static]
```

2.2.1.13 isAcyclic()

```
static boolean es.ull.esit.utilities.ExpositoUtilities.isAcyclic (
            int distanceMatrix[][] )  [static]
```

2.2.1.14 isDouble()

```
static boolean es.ull.esit.utilities.ExpositoUtilities.isDouble (
            String str )  [static]
```

2.2.1.15 isInteger()

```
static boolean es.ull.esit.utilities.ExpositoUtilities.isInteger (
            String str )  [static]
```

2.2.1.16 multiplyMatrices()

```
static double[][] es.ull.esit.utilities.ExpositoUtilities.multiplyMatrices (
            double a[][],
            double b[][] )  [static]
```

2.2.1.17 printFile()

```
static void es.ull.esit.utilities.ExpositoUtilities.printFile (
            String file )  [static]
```

2.2.1.18 simplifyString()

```
static String es.ull.esit.utilities.ExpositoUtilities.simplifyString (
            String string )  [static]
```

2.2.1.19 thereIsPath()

```
static boolean es.ull.esit.utilities.ExpositoUtilities.thereIsPath (
            int distanceMatrix[][],
            int node )  [static]
```

2.2.1.20 writeTextToFile()

```
static void es.ull.esit.utilities.ExpositoUtilities.writeTextToFile (
            String file,
            String text ) throws IOException  [static]
```

2.2.2 Member Data Documentation

2.2.2.1 ALIGNMENT_LEFT

```
final int es.ull.esit.utilities.ExpositoUtilities.ALIGNMENT_LEFT = 1  [static]
```

2.2.2.2 ALIGNMENT_RIGHT

```
final int es.ull.esit.utilities.ExpositoUtilities.ALIGNMENT_RIGHT = 2  [static]
```

2.2.2.3 DEFAULT_COLUMN_WIDTH

```
final int es.ull.esit.utilities.ExpositoUtilities.DEFAULT_COLUMN_WIDTH = 10  [static]
```

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

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

2.3 top.mainTOPTW Class Reference

Static Public Member Functions

- static void main (String[ ] args)

2.3.1 Member Function Documentation

2.3.1.1 main()

```
static void top.mainTOPTW.main (
            String[] args )  [static]
```

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

- src/top/mainTOPTW.java

2.4 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

2.4.1 Constructor & Destructor Documentation

2.4.1.1 Pair()

```
es.ull.esit.utils.Pair< F, S >.Pair (
            F first,
            S second )
```

2.4.2 Member Function Documentation

2.4.2.1 create()

```
static< A, B > Pair< A, B > es.ull.esit.utils.Pair< F, S >.create (
            A a,
            B b )  [static]
```

2.4.2.2 equals()

```
boolean es.ull.esit.utils.Pair< F, S >.equals (
            Object o )
```

2.4.2.3 hashCode()

```
int es.ull.esit.utils.Pair< F, S >.hashCode ( )
```

2.4.3 Member Data Documentation

2.4.3.1 first

```
final F es.ull.esit.utils.Pair< F, S >.first
```

2.4.3.2 second

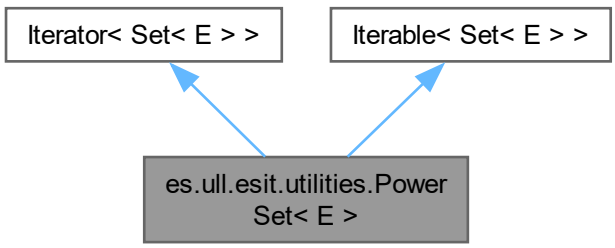
```
final S es.ull.esit.utils.Pair< F, S >.second
```

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

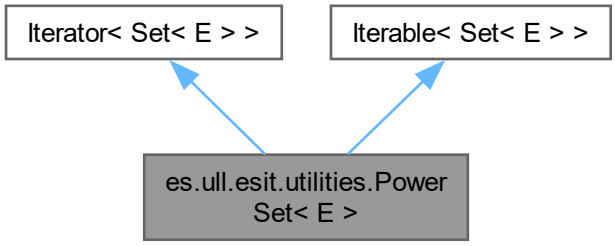
- src/es/ull/esit/utils/Pair.java

2.5 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 ()

2.5.1 Constructor & Destructor Documentation

2.5.1.1 PowerSet()

```
es.ull.esit.utilities.PowerSet< E >.PowerSet (
            Set< E > set )
```

2.5.2 Member Function Documentation

2.5.2.1 hasNext()

```
boolean es.ull.esit.utilities.PowerSet< E >.hasNext ( )
```

2.5.2.2 iterator()

```
Iterator< Set< E > > es.ull.esit.utilities.PowerSet< E >.iterator ( )
```

2.5.2.3 next()

```
Set< E > es.ull.esit.utilities.PowerSet< E >.next ( )
```

2.5.2.4 remove()

```
void es.ull.esit.utilities.PowerSet< E >.remove ( )
```

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

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

2.6 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 ()

2.6.1 Constructor & Destructor Documentation

2.6.1.1 TOPTW()

```
top.TOPTW.TOPTW (
            int nodes,
            int routes )
```

2.6.2 Member Function Documentation

2.6.2.1 addNode()

```
int top.TOPTW.addNode ( )
```

2.6.2.2 addNodeDepot()

```
int top.TOPTW.addNodeDepot ( )
```

2.6.2.3 calculateDistanceMatrix()

```
void top.TOPTW.calculateDistanceMatrix ( )
```

2.6.2.4 getDistance() [1/4]

```
double top.TOPTW.getDistance (
            ArrayList< Integer > route )
```

2.6.2.5 getDistance() [2/4]

```
double top.TOPTW.getDistance (
            ArrayList< Integer >[] routes )
```

2.6.2.6 getDistance() [3/4]

```
double top.TOPTW.getDistance (
            int i,
            int j )
```

2.6.2.7 getDistance() [4/4]

```
double top.TOPTW.getDistance (
            int[] route )
```

2.6.2.8 getDueTime()

```
double top.TOPTW.getDueTime (
            int index )
```

2.6.2.9 getMaxRoutes()

```
double top.TOPTW.getMaxRoutes ( )
```

2.6.2.10 getMaxTimePerRoute()

```
double top.TOPTW.getMaxTimePerRoute ( )
```

2.6.2.11 getNodes()

```
int top.TOPTW.getNodes ( )
```

2.6.2.12 getPOIs()

```
int top.TOPTW.getPOIs ( )
```

2.6.2.13 getReadyTime()

```
double top.TOPTW.getReadyTime (
            int index )
```

2.6.2.14 getScore() [1/2]

```
double[] top.TOPTW.getScore ( )
```

2.6.2.15 getScore() [2/2]

```
double top.TOPTW.getScore (
            int index )
```

2.6.2.16 getServiceTime()

```
double top.TOPTW.getServiceTime (
            int index )
```

2.6.2.17 getTime()

```
double top.TOPTW.getTime (
            int i,
            int j )
```

2.6.2.18 getVehicles()

```
int top.TOPTW.getVehicles ( )
```

2.6.2.19 getX()

```
double top.TOPTW.getX (
            int index )
```

2.6.2.20 getY()

```
double top.TOPTW.getY (
            int index )
```

2.6.2.21 isDepot()

```
boolean top.TOPTW.isDepot (
            int a )
```

2.6.2.22 setDueTime()

```
void top.TOPTW.setDueTime (
            int index,
            double dueTime )
```

2.6.2.23 setMaxRoutes()

```
void top.TOPTW.setMaxRoutes (
            double maxRoutes )
```

2.6.2.24 setMaxTimePerRoute()

```
void top.TOPTW.setMaxTimePerRoute (
            double maxTimePerRoute )
```

2.6.2.25 setNodes()

```
void top.TOPTW.setNodes (
            int nodes )
```

2.6.2.26 setReadyTime()

```
void top.TOPTW.setReadyTime (
            int index,
            double readyTime )
```

2.6.2.27 setScore()

```
void top.TOPTW.setScore (
            int index,
            double score )
```

2.6.2.28 setServiceTime()

```
void top.TOPTW.setServiceTime (
            int index,
            double serviceTime )
```

2.6.2.29 setX()

```
void top.TOPTW.setX (
            int index,
            double x )
```

2.6.2.30 setY()

```
void top.TOPTW.setY (
            int index,
            double y )
```

2.6.2.31 toString()

```
String top.TOPTW.toString ( )
```

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

- src/top/TOPTW.java

2.7 top.TOPTWEvaluator Class Reference

Public Member Functions

- void evaluate (TOPTWSolution solution)

Static Public Attributes

- static double NO_EVALUATED = -1.0

2.7.1 Member Function Documentation

2.7.1.1 evaluate()

```
void top.TOPTWEvaluator.evaluate (
            TOPTWSolution solution )
```

2.7.2 Member Data Documentation

2.7.2.1 NO_EVALUATED

```
double top.TOPTWEvaluator.NO_EVALUATED = -1.0  [static]
```

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

- src/top/TOPTWEvaluator.java

2.8 top.TOPTWGRASP Class Reference

Public Member Functions

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

2.8.1 Constructor & Destructor Documentation

2.8.1.1 TOPTWGRASP()

```
top.TOPTWGRASP.TOPTWGRASP (
            TOPTWSolution sol )
```

2.8.2 Member Function Documentation

2.8.2.1 aleatorySelectionRCL()

```
int top.TOPTWGRASP.aleatorySelectionRCL (
            int maxTRCL )
```

2.8.2.2 comprehensiveEvaluation()

```
ArrayList< double[] > top.TOPTWGRASP.comprehensiveEvaluation (
            ArrayList< Integer > customers,
            ArrayList< ArrayList< Double > > departureTimes )
```

2.8.2.3 computeGreedySolution()

```
void top.TOPTWGRASP.computeGreedySolution (
            int maxSizeRCL )
```

2.8.2.4 fuzzySelectionAlphaCutRCL()

```
int top.TOPTWGRASP.fuzzySelectionAlphaCutRCL (
            ArrayList< double[] > rcl,
            double alpha )
```

2.8.2.5 fuzzySelectionBestFDRCL()

```
int top.TOPTWGRASP.fuzzySelectionBestFDRCL (
            ArrayList< double[] > rcl )
```

2.8.2.6 getMaxScore()

```
double top.TOPTWGRASP.getMaxScore ( )
```

2.8.2.7 getSolution()

```
TOPTWSolution top.TOPTWGRASP.getSolution ( )
```

2.8.2.8 getSolutionTime()

```
int top.TOPTWGRASP.getSolutionTime ( )
```

2.8.2.9 GRASP()

```
void top.TOPTWGRASP.GRASP (
            int maxIterations,
            int maxSizeRCL )
```

2.8.2.10 setSolution()

```
void top.TOPTWGRASP.setSolution (
            TOPTWSolution solution )
```

2.8.2.11 setSolutionTime()

```
void top.TOPTWGRASP.setSolutionTime (
            int solutionTime )
```

2.8.2.12 updateSolution()

```
void top.TOPTWGRASP.updateSolution (
            double[] candidateSelected,
            ArrayList< ArrayList< Double > > departureTimes )
```

2.8.3 Member Data Documentation

2.8.3.1 NO_EVALUATED

```
double top.TOPTWGRASP.NO_EVALUATED = -1.0  [static]
```

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

- src/top/TOPTWGRASP.java

2.9 top.TOPTWReader Class Reference

Static Public Member Functions

- static TOPTW readProblem (String filePath)

2.9.1 Member Function Documentation

2.9.1.1 readProblem()

```
static TOPTW top.TOPTWReader.readProblem (
            String filePath )  [static]
```

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

- src/top/TOPTWReader.java

2.10 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)

2.10.1 Member Function Documentation

2.10.1.1 getId()

```
int top.TOPTWRoute.getId ( )
```

2.10.1.2 getPredeccesor()

```
int top.TOPTWRoute.getPredeccesor ( )
```

2.10.1.3 getSuccesor()

```
int top.TOPTWRoute.getSuccesor ( )
```

2.10.1.4 setId()

```
void top.TOPTWRoute.setId (
            int id )
```

2.10.1.5 setPredeccesor()

```
void top.TOPTWRoute.setPredeccesor (
            int pre )
```

2.10.1.6 setSuccesor()

```
void top.TOPTWRoute.setSuccesor (
            int suc )
```

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

- src/top/TOPTWRoute.java

2.11 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

2.11.1 Constructor & Destructor Documentation

2.11.1.1 TOPTWSolution()

```
top.TOPTWSolution.TOPTWSolution (
            TOPTW problem )
```

2.11.2 Member Function Documentation

2.11.2.1 addRoute()

```
int top.TOPTWSolution.addRoute ( )
```

2.11.2.2 equals()

```
boolean top.TOPTWSolution.equals (
            TOPTWSolution otherSolution )
```

2.11.2.3 evaluateFitness()

```
double top.TOPTWSolution.evaluateFitness ( )
```

2.11.2.4 getAvailableVehicles()

```
int top.TOPTWSolution.getAvailableVehicles ( )
```

2.11.2.5 getCreatedRoutes()

```
int top.TOPTWSolution.getCreatedRoutes ( )
```

2.11.2.6 getDistance()

```
double top.TOPTWSolution.getDistance (
            int x,
            int y )
```

2.11.2.7 getIndexRoute()

```
int top.TOPTWSolution.getIndexRoute (
            int index )
```

2.11.2.8 getInfoSolution()

```
String top.TOPTWSolution.getInfoSolution ( )
```

2.11.2.9 getObjectiveFunctionValue()

```
double top.TOPTWSolution.getObjectiveFunctionValue ( )
```

2.11.2.10 getPositionInRoute()

```
int top.TOPTWSolution.getPositionInRoute (
            int customer )
```

2.11.2.11 getPredecessor()

```
int top.TOPTWSolution.getPredecessor (
            int customer )
```

2.11.2.12 getPredecessors()

```
int[] top.TOPTWSolution.getPredecessors ( )
```

2.11.2.13 getProblem()

```
TOPTW top.TOPTWSolution.getProblem ( )
```

2.11.2.14 getSuccessor()

```
int top.TOPTWSolution.getSuccessor (
            int customer )
```

2.11.2.15 getSuccessors()

```
int[] top.TOPTWSolution.getSuccessors ( )
```

2.11.2.16 getWaitingTime()

```
double top.TOPTWSolution.getWaitingTime (
            int customer )
```

2.11.2.17 initSolution()

```
void top.TOPTWSolution.initSolution ( )
```

2.11.2.18 isDepot()

```
boolean top.TOPTWSolution.isDepot (
            int c )
```

2.11.2.19 printSolution()

```
double top.TOPTWSolution.printSolution ( )
```

2.11.2.20 setAvailableVehicles()

```
void top.TOPTWSolution.setAvailableVehicles (
            int availableVehicles )
```

2.11.2.21 setObjectiveFunctionValue()

```
void top.TOPTWSolution.setObjectiveFunctionValue (
            double objectiveFunctionValue )
```

2.11.2.22 setPositionInRoute()

```
void top.TOPTWSolution.setPositionInRoute (
            int customer,
            int position )
```

2.11.2.23 setPredecessor()

```
void top.TOPTWSolution.setPredecessor (
            int customer,
            int predecessor )
```

2.11.2.24 setSuccessor()

```
void top.TOPTWSolution.setSuccessor (
            int customer,
            int succesor )
```

2.11.2.25 setWaitingTime()

```
void top.TOPTWSolution.setWaitingTime (
            int customer,
            int waitingTime )
```

2.11.3 Member Data Documentation

2.11.3.1 NO_INITIALIZED

```
final int top.TOPTWSolution.NO_INITIALIZED = -1  [static]
```

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

- src/top/TOPTWSolution.java

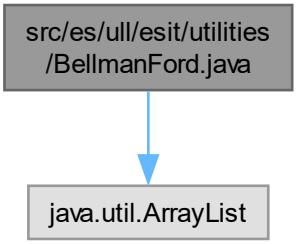
Chapter 3

File Documentation

3.1 src/es/ull/esit/utilities/BellmanFord.java File Reference

```
import java.util.ArrayList;
```

Include dependency graph for BellmanFord.java:



Classes

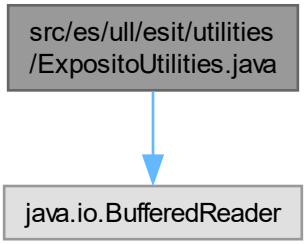
- class es.ull.esit.utilities.BellmanFord

Packages

- package es.ull.esit.utilities

3.2 src/es/ull/esit/utilities/ExpositoUtilities.java File Reference

```
import java.io.BufferedReader;
```
Include dependency graph for ExpositoUtilities.java:



Classes

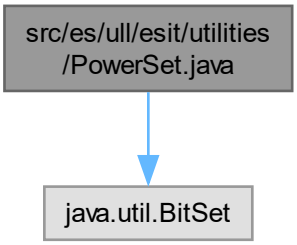
- class es.ull.esit.utilities.ExpositoUtilities

Packages

- package es.ull.esit.utilities

3.3 src/es/ull/esit/utilities/PowerSet.java File Reference

```
import java.util.BitSet;
```
Include dependency graph for PowerSet.java:



Classes

- class es.ull.esit.utilities.PowerSet< E >

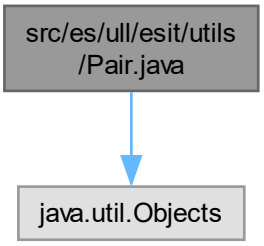
Packages

- package es.ull.esit.utilities

3.4 src/es/ull/esit/utils/Pair.java File Reference

```
import java.util.Objects;
```

Include dependency graph for Pair.java:



Classes

- class es.ull.esit.utils.Pair< F, S >

Packages

- package es.ull.esit.utils

3.5 src/top/mainTOPTW.java File Reference

Classes

- class top.mainTOPTW

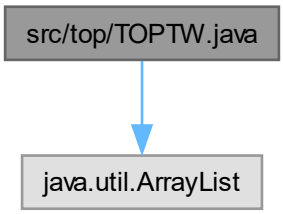
Packages

- package top

3.6 src/top/TOPTW.java File Reference

```
import java.util.ArrayList;
```

Include dependency graph for TOPTW.java:



Classes

- class top.TOPTW

Packages

- package top

3.7 src/top/TOPTWEvaluator.java File Reference

Classes

- class top.TOPTWEvaluator

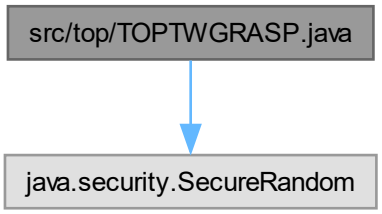
Packages

- package top

3.8 src/top/TOPTWGRASP.java File Reference

```
import java.security.SecureRandom;
```

Include dependency graph for TOPTWGRASP.java:



Classes

- class top.TOPTWGRASP

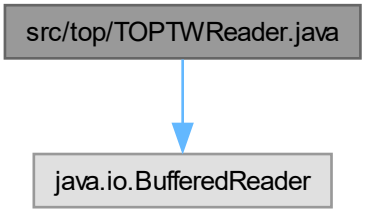
Packages

- package top

3.9 src/top/TOPTWReader.java File Reference

```
import java.io.BufferedReader;
```

Include dependency graph for TOPTWReader.java:



Classes

- class top.TOPTWReader

Packages

- package top

3.10 src/top/TOPTWRoute.java File Reference

Classes

- class top.TOPTWRoute

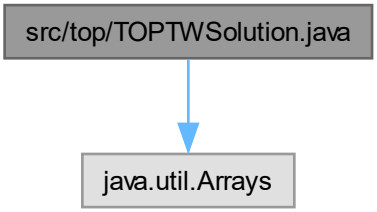
Packages

- package top

3.11 src/top/TOPTWSolution.java File Reference

```
import java.util.Arrays;
```

Include dependency graph for TOPTWSolution.java:



Classes

- class top.TOPTWSolution

Packages

- package top

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