

My Project

Generated by Doxygen 1.12.0

Chapter 1

README

"# Practica3LDH"

Chapter 2

Namespace Index

2.1 Package List

Here are the packages with brief descriptions (if available):

main.java.es.ull.esit.utilities	??
main.java.es.ull.esit.utils	??
main.java.top	??

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

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

main.java.es.ull.esit.utilities.BellmanFord	??
main.java.es.ull.esit.utilities.ExpositoUtilities	??
Iterable	
main.java.es.ull.esit.utilities.PowerSet< E >	??
main.java.top.mainTOPTW	??
main.java.es.ull.esit.utils.Pair< F, S >	??
main.java.top.TOPTW	??
main.java.top.TOPTWEvaluator	??
main.java.top.TOPTWGRASP	??
main.java.top.TOPTWReader	??
main.java.top.TOPTWRoute	??
main.java.top.TOPTWSolution	??
Iterator	
main.java.es.ull.esit.utilities.PowerSet< E >	??

Chapter 4

Class Index

4.1 Class List

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

main.java.es.ull.esit.utilities.BellmanFord	??
main.java.es.ull.esit.utilities.ExpositoUtilities	??
main.java.top.mainTOPTW	??
main.java.es.ull.esit.utils.Pair< F, S >	??
main.java.es.ull.esit.utilities.PowerSet< E >	??
main.java.top.TOPTW	??
main.java.top.TOPTWEvaluator	??
main.java.top.TOPTWGRASP	??
main.java.top.TOPTWReader	??
main.java.top.TOPTWRoute	??
main.java.top.TOPTWSolution	??

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

src/main/java/es/ull/esit/utilities/BellmanFord.java	??
src/main/java/es/ull/esit/utilities/ExpositoUtilities.java	??
src/main/java/es/ull/esit/utilities/PowerSet.java	??
src/main/java/es/ull/esit/utills/Pair.java	??
src/main/java/top/mainTOPTW.java	??
src/main/java/top/TOPTW.java	??
src/main/java/top/TOPTWEvaluator.java	??
src/main/java/top/TOPTWGRASP.java	??
src/main/java/top/TOPTWReader.java	??
src/main/java/top/TOPTWRoute.java	??
src/main/java/top/TOPTWSolution.java	??

Chapter 6

Namespace Documentation

6.1 Package `main.java.es.ull.esit.utilities`

Classes

- class [BellmanFord](#)
- class [ExpositoUtilities](#)
- class [PowerSet](#)

6.2 Package `main.java.es.ull.esit.utils`

Classes

- class [Pair](#)

6.3 Package `main.java.top`

Classes

- class [mainTOPTW](#)
- class [TOPTW](#)
- class [TOPTWEvaluator](#)
- class [TOPTWGRASP](#)
- class [TOPTWReader](#)
- class [TOPTWRoute](#)
- class [TOPTWSolution](#)

Chapter 7

Class Documentation

7.1 main.java.es.ull.esit.utilities.BellmanFord Class Reference

Public Member Functions

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

7.1.1 Constructor & Destructor Documentation

7.1.1.1 BellmanFord()

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

Parameters

<i>distanceMatrix</i>	
<i>nodes</i>	
<i>path</i>	

7.1.2 Member Function Documentation

7.1.2.1 getDistances()

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

Returns

7.1.2.2 getValue()

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

Returns

7.1.2.3 solve()

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

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

- [src/main/java/es/ull/esit/utilities/BellmanFord.java](#)

7.2 main.java.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 [therelsPath](#) (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

7.2.1 Member Function Documentation

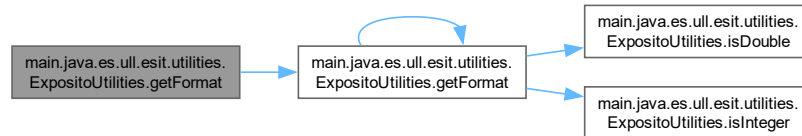
7.2.1.1 getFormat() [1/12]

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

7.2.1.2 getFormat() [2/12]

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

Here is the call graph for this function:



7.2.1.3 getFormat() [3/12]

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

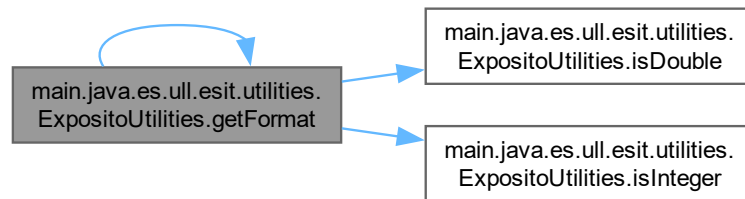
7.2.1.4 getFormat() [4/12]

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

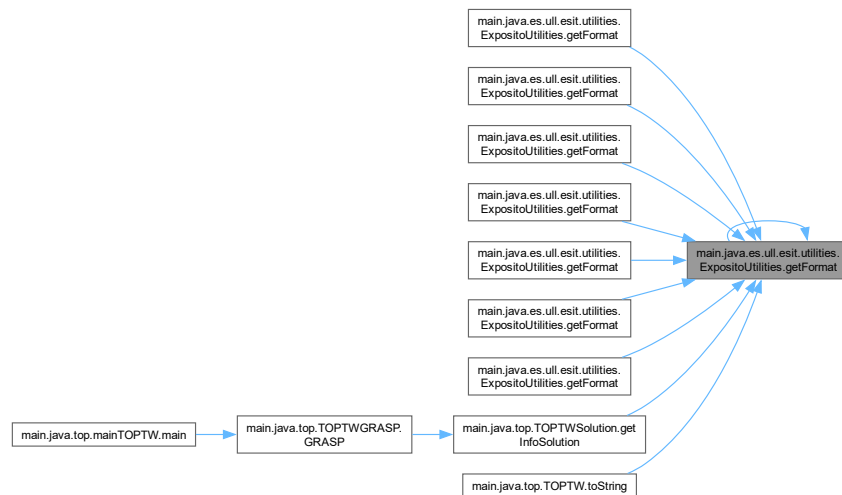
7.2.1.5 getFormat() [5/12]

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

Here is the call graph for this function:



Here is the caller graph for this function:

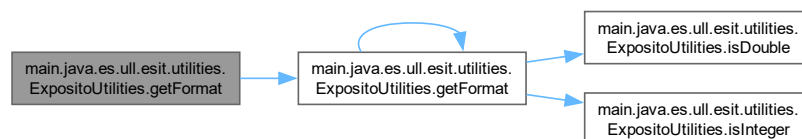


7.2.1.6 getFormat() [6/12]

```

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

Here is the call graph for this function:



7.2.1.7 getFormat() [7/12]

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

7.2.1.8 getFormat() [8/12]

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

Here is the call graph for this function:

**7.2.1.9 getFormat() [9/12]**

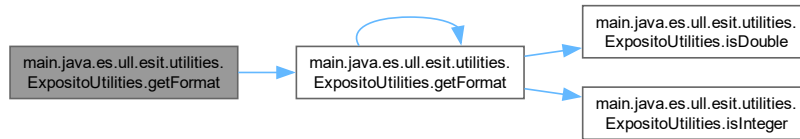
```
static String main.java.es.ull.esit.utilities.ExpositoUtilities.getFormat (
    String[] strings,
    int width) [static]
```

Here is the call graph for this function:

**7.2.1.10 getFormat() [10/12]**

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

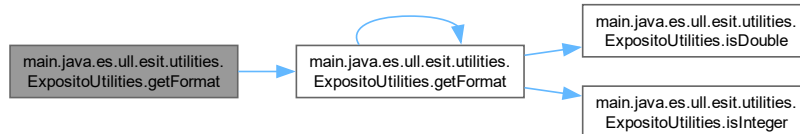
Here is the call graph for this function:



7.2.1.11 `getFormat()` [11/12]

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

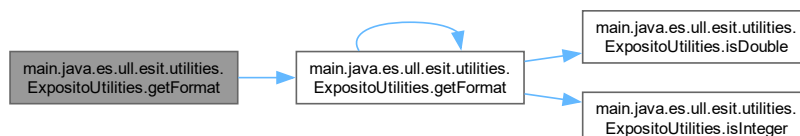
Here is the call graph for this function:



7.2.1.12 `getFormat()` [12/12]

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

Here is the call graph for this function:



7.2.1.13 isAcyclic()

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

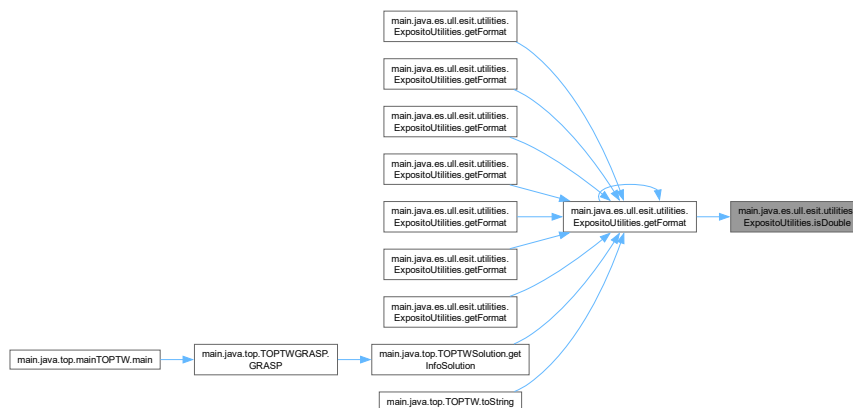
Here is the call graph for this function:



7.2.1.14 isDouble()

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

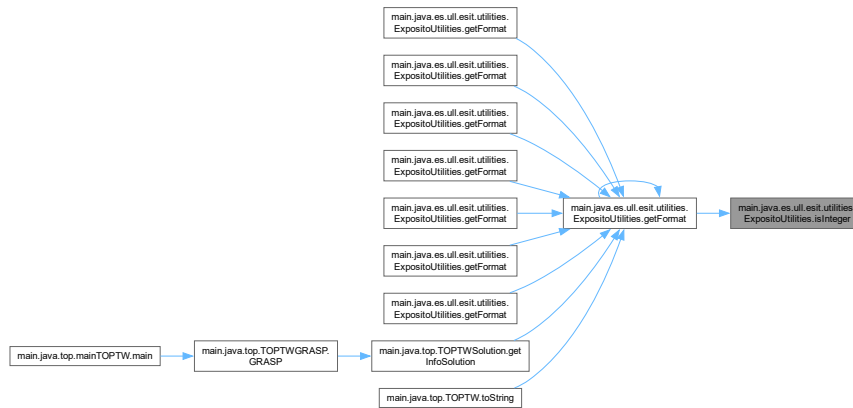
Here is the caller graph for this function:



7.2.1.15 isInteger()

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

Here is the caller graph for this function:



7.2.1.16 multiplyMatrices()

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

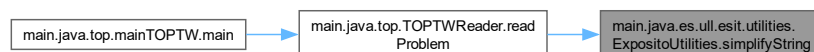
7.2.1.17 printFile()

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

7.2.1.18 simplifyString()

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

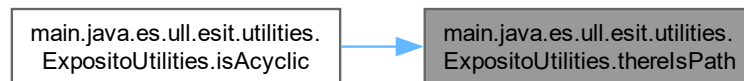
Here is the caller graph for this function:



7.2.1.19 thereIsPath()

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

Here is the caller graph for this function:



7.2.1.20 writeTextToFile()

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

7.2.2 Member Data Documentation

7.2.2.1 ALIGNMENT_LEFT

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

7.2.2.2 ALIGNMENT_RIGHT

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

7.2.2.3 DEFAULT_COLUMN_WIDTH

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

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

- [src/main/java/es/ull/esit/utilities/ExpositoUtilities.java](#)

7.3 main.java.top.mainTOPTW Class Reference

Static Public Member Functions

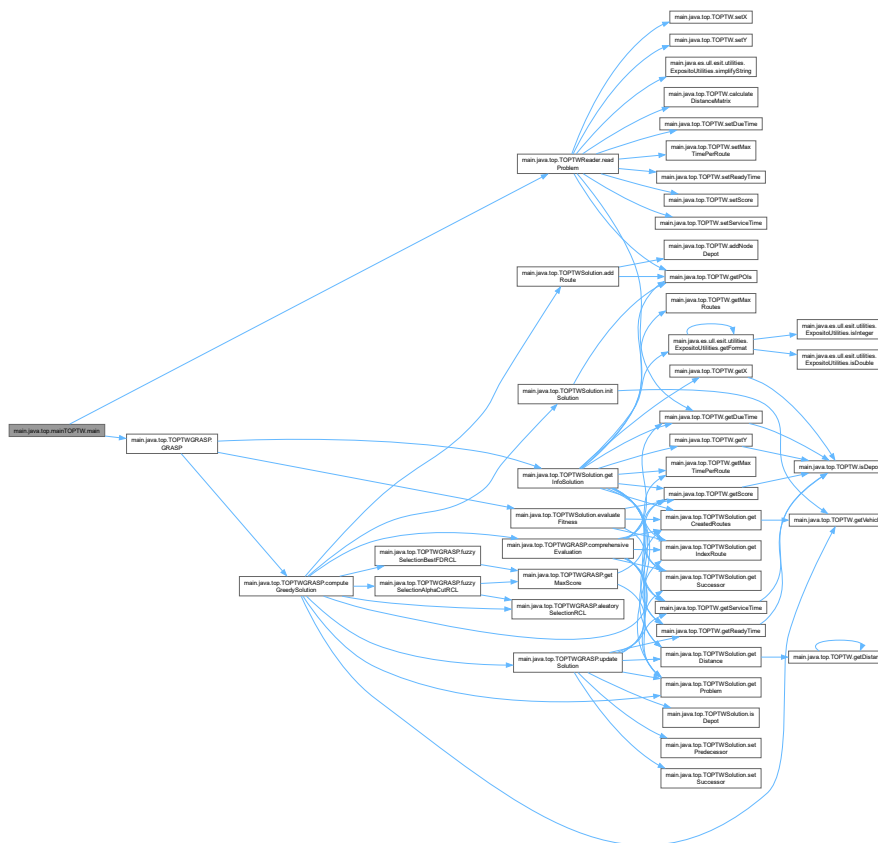
- static void [main](#) (String[] args)

7.3.1 Member Function Documentation

7.3.1.1 main()

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

Here is the call graph for this function:



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

- [src/main/java/top/mainTOPTW.java](#)

7.4 main.java.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

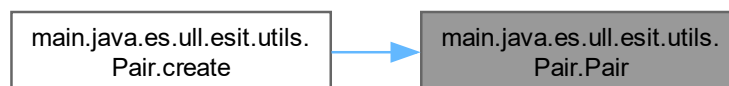
- final F [first](#)
- final S [second](#)

7.4.1 Constructor & Destructor Documentation

7.4.1.1 Pair()

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

Here is the caller graph for this function:



7.4.2 Member Function Documentation

7.4.2.1 create()

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

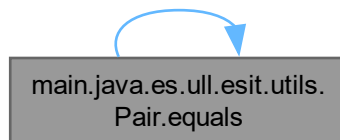
Here is the call graph for this function:



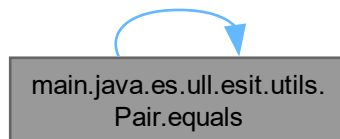
7.4.2.2 equals()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.4.2.3 hashCode()

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

7.4.3 Member Data Documentation

7.4.3.1 first

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

7.4.3.2 second

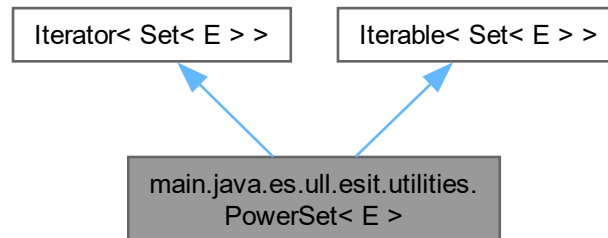
```
final S main.java.es.ull.esit.utils.Pair< F, S >.second
```

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

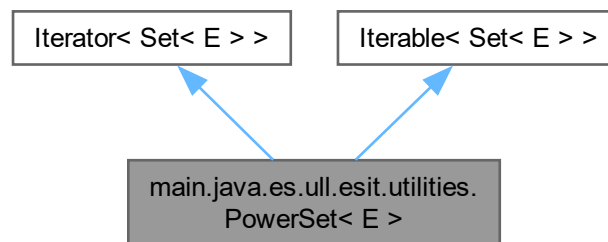
- [src/main/java/es/ull/esit/utils/Pair.java](#)

7.5 main.java.es.ull.esit.utilities.PowerSet< E > Class Template Reference

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



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



Public Member Functions

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

7.5.1 Constructor & Destructor Documentation

7.5.1.1 PowerSet()

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

7.5.2 Member Function Documentation

7.5.2.1 hasNext()

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

7.5.2.2 iterator()

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

7.5.2.3 next()

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

7.5.2.4 remove()

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

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

- [src/main/java/es/ull/esit/utilities/PowerSet.java](#)

7.6 [main.java.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](#) ()

7.6.1 Constructor & Destructor Documentation

7.6.1.1 TOPTW()

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

7.6.2 Member Function Documentation

7.6.2.1 addNode()

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

7.6.2.2 addNodeDepot()

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

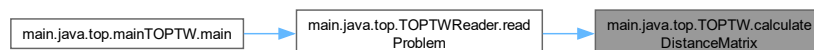
Here is the caller graph for this function:



7.6.2.3 calculateDistanceMatrix()

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

Here is the caller graph for this function:



7.6.2.4 `getDistance()` [1/4]

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

Here is the call graph for this function:



7.6.2.5 `getDistance()` [2/4]

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

Here is the call graph for this function:



7.6.2.6 `getDistance()` [3/4]

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

Here is the call graph for this function:



7.6.2.7 getDistance() [4/4]

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

Here is the call graph for this function:



Here is the caller graph for this function:



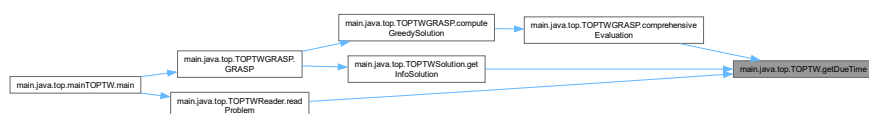
7.6.2.8 getDueTime()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.6.2.9 getMaxRoutes()

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

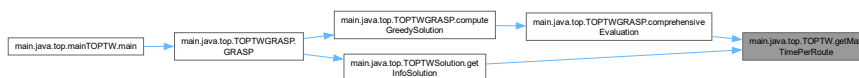
Here is the caller graph for this function:



7.6.2.10 getMaxTimePerRoute()

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

Here is the caller graph for this function:



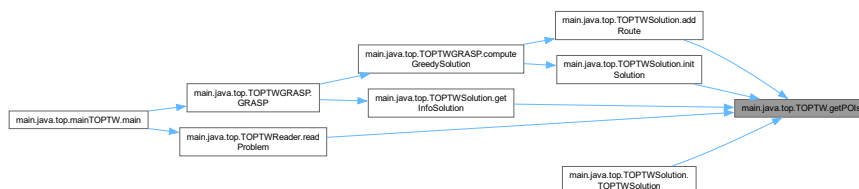
7.6.2.11 getNodes()

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

7.6.2.12 getPOIs()

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

Here is the caller graph for this function:



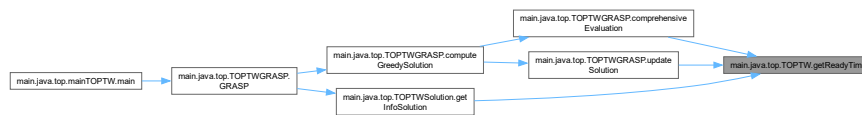
7.6.2.13 getReadyTime()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.6.2.14 getScore() [1/2]

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

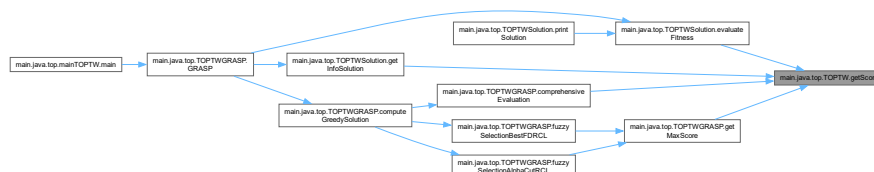
7.6.2.15 getScore() [2/2]

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

Here is the call graph for this function:



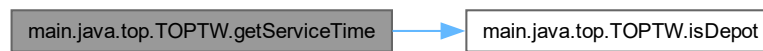
Here is the caller graph for this function:



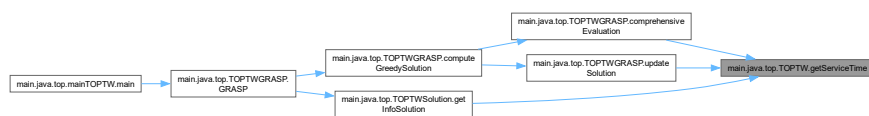
7.6.2.16 getServiceTime()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.6.2.17 getTime()

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

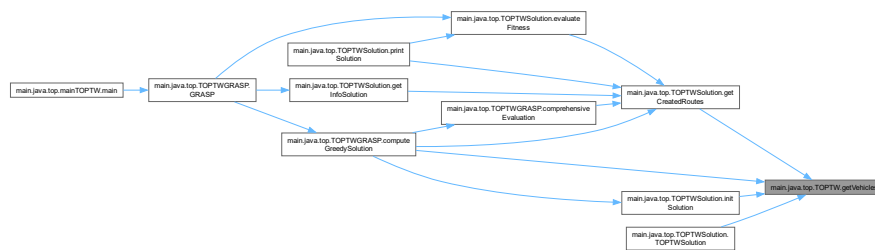
Here is the call graph for this function:



7.6.2.18 getVehicles()

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

Here is the caller graph for this function:



7.6.2.19 getX()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.6.2.20 getY()

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

Here is the call graph for this function:



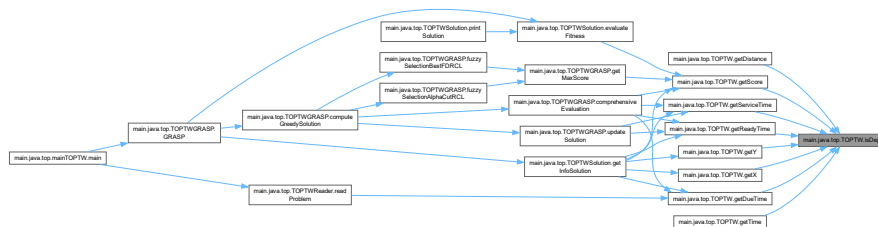
Here is the caller graph for this function:



7.6.2.21 isDepot()

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

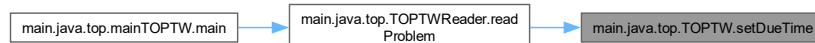
Here is the caller graph for this function:



7.6.2.22 setDueTime()

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

Here is the caller graph for this function:



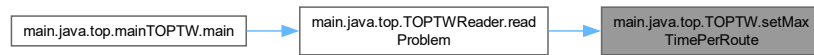
7.6.2.23 setMaxRoutes()

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

7.6.2.24 setMaxTimePerRoute()

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

Here is the caller graph for this function:



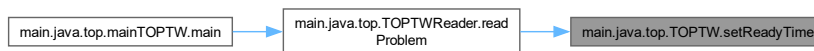
7.6.2.25 setNodes()

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

7.6.2.26 setReadyTime()

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

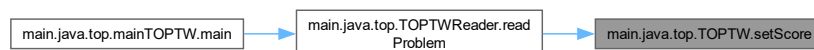
Here is the caller graph for this function:



7.6.2.27 setScore()

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

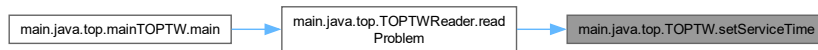
Here is the caller graph for this function:



7.6.2.28 `setServiceTime()`

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

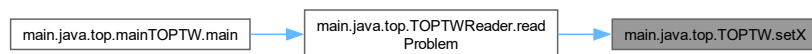
Here is the caller graph for this function:



7.6.2.29 `setX()`

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

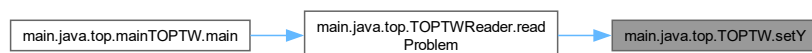
Here is the caller graph for this function:



7.6.2.30 `setY()`

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

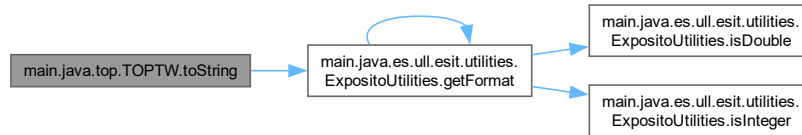
Here is the caller graph for this function:



7.6.2.31 toString()

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

Here is the call graph for this function:



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

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

7.7 main.java.top.TOPTWEvaluator Class Reference

Public Member Functions

- void `evaluate` (`TOPTWSolution` solution)

Static Public Attributes

- static double `NO_EVALUATED` = -1.0

7.7.1 Member Function Documentation

7.7.1.1 evaluate()

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

7.7.2 Member Data Documentation

7.7.2.1 NO_EVALUATED

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

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

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

7.8 main.java.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

7.8.1 Constructor & Destructor Documentation

7.8.1.1 TOPTWGRASP()

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

7.8.2 Member Function Documentation

7.8.2.1 aleatorySelectionRCL()

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

Here is the caller graph for this function:



7.8.2.2 comprehensiveEvaluation()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.8.2.3 computeGreedySolution()

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


7.8.2.5 fuzzySelectionBestFDRCL()

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

Here is the call graph for this function:



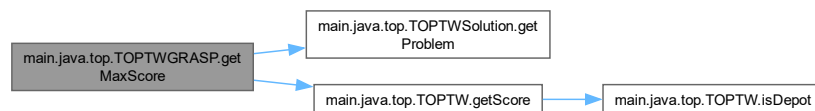
Here is the caller graph for this function:



7.8.2.6 getMaxScore()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.8.2.7 getSolution()

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

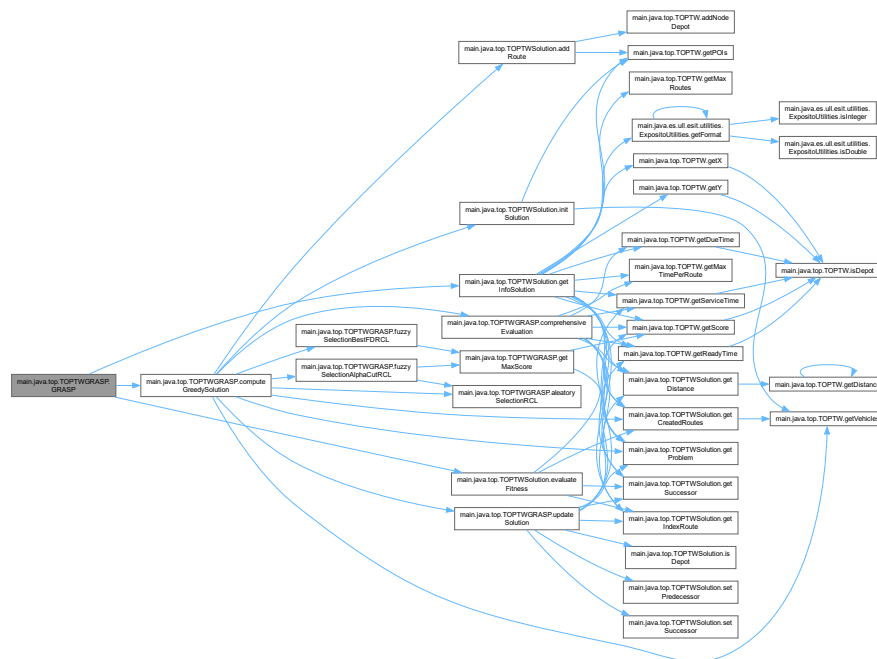
7.8.2.8 `getSolutionTime()`

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

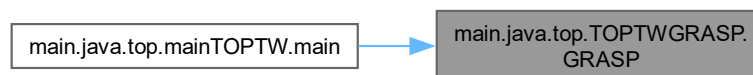
7.8.2.9 `GRASP()`

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.8.2.10 `setSolution()`

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

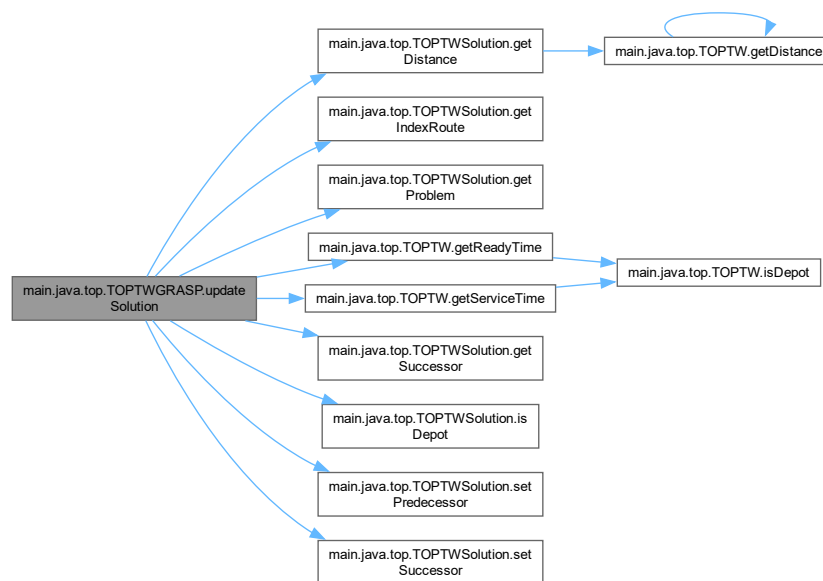
7.8.2.11 setSolutionTime()

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

7.8.2.12 updateSolution()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.8.3 Member Data Documentation

7.8.3.1 NO_EVALUATED

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

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

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

7.9 main.java.top.TOPTWReader Class Reference

Static Public Member Functions

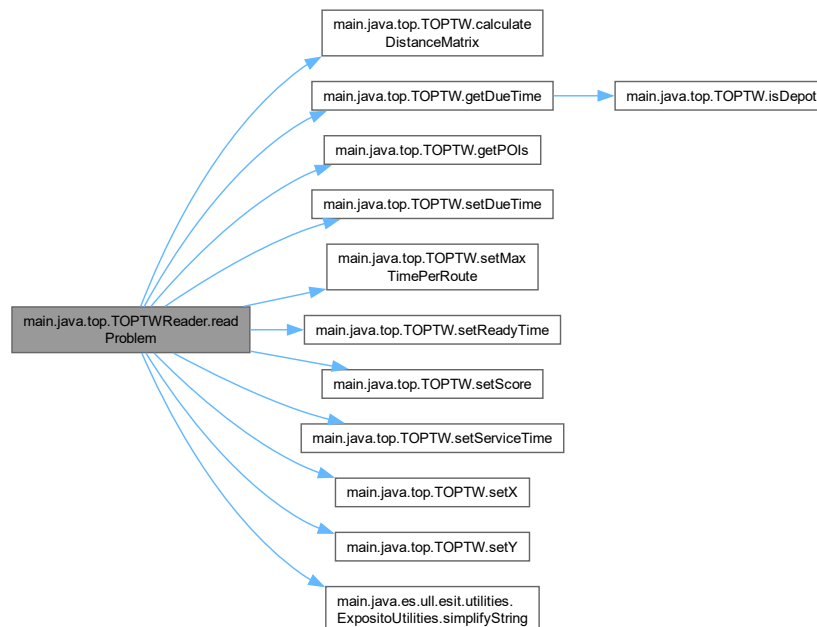
- static [TOPTW readProblem](#) (String filePath)

7.9.1 Member Function Documentation

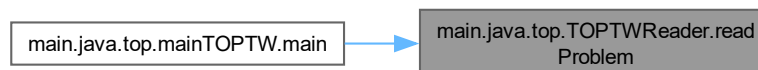
7.9.1.1 readProblem()

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

Here is the call graph for this function:



Here is the caller graph for this function:



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

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

7.10 main.java.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)

7.10.1 Member Function Documentation

7.10.1.1 getId()

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

7.10.1.2 getPredeccesor()

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

7.10.1.3 getSuccesor()

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

7.10.1.4 setId()

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

7.10.1.5 setPredeccesor()

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

7.10.1.6 setSuccesor()

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

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

- src/main/java/top/[TOPTWRoute.java](#)

7.11 main.java.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 successor)
- void [setWaitingTime](#) (int customer, int waitingTime)
- String [getInfoSolution](#) ()
- double [evaluateFitness](#) ()
- int [addRoute](#) ()
- double [printSolution](#) ()

Static Public Attributes

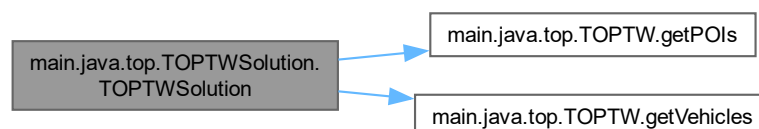
- static final int [NO_INITIALIZED](#) = -1

7.11.1 Constructor & Destructor Documentation

7.11.1.1 TOPTWSolution()

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

Here is the call graph for this function:

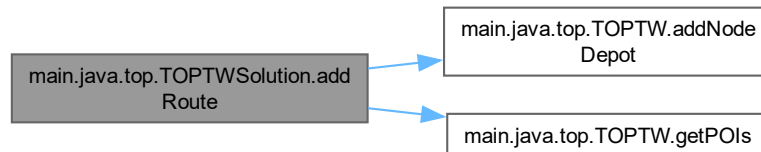


7.11.2 Member Function Documentation

7.11.2.1 addRoute()

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

Here is the call graph for this function:



Here is the caller graph for this function:



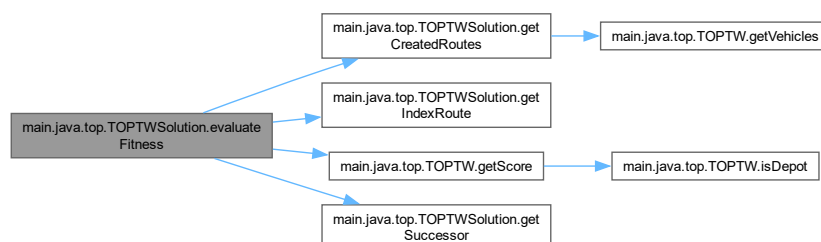
7.11.2.2 equals()

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

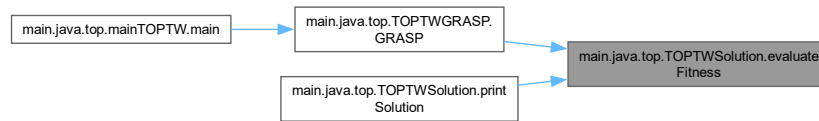
7.11.2.3 evaluateFitness()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.11.2.4 `getAvailableVehicles()`

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

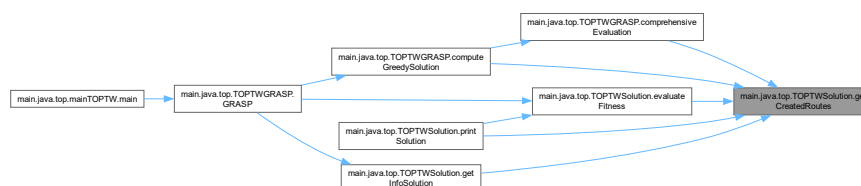
7.11.2.5 `getCreatedRoutes()`

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

Here is the call graph for this function:



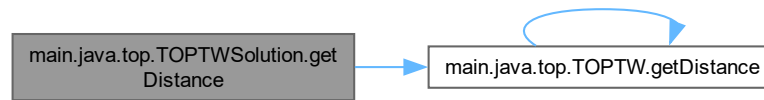
Here is the caller graph for this function:



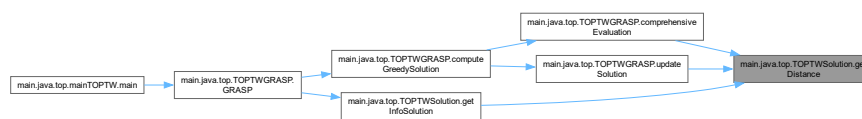
7.11.2.6 `getDistance()`

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

Here is the call graph for this function:



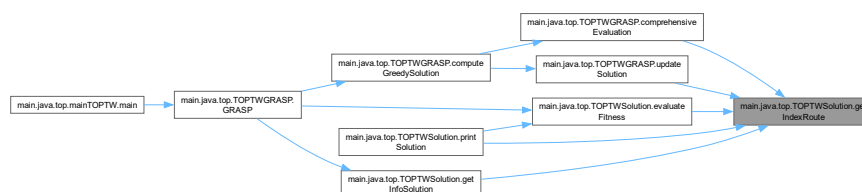
Here is the caller graph for this function:



7.11.2.7 getIndexRoute()

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

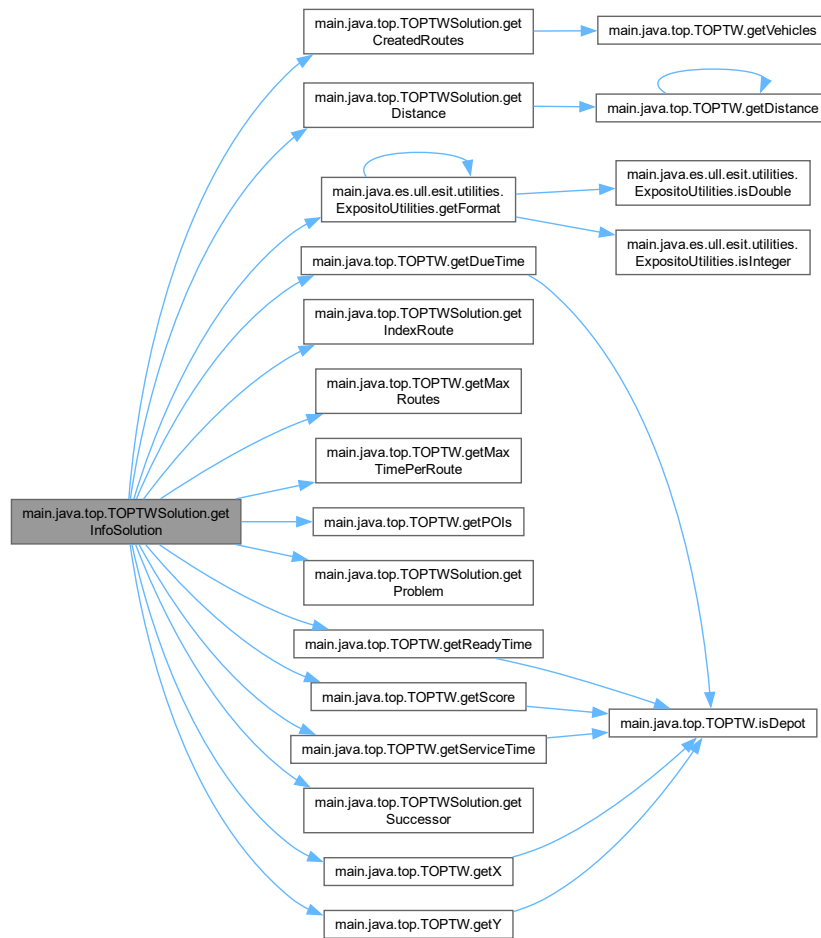
Here is the caller graph for this function:



7.11.2.8 getInfoSolution()

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

Here is the call graph for this function:



Here is the caller graph for this function:



7.11.2.9 getObjectiveFunctionValue()

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

7.11.2.10 getPositionInRoute()

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

7.11.2.11 getPredecessor()

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

7.11.2.12 getPredecessors()

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

7.11.2.13 getProblem()

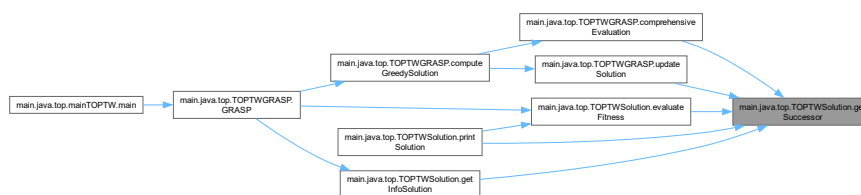
```
TOPTW main.java.top.TOPTWSolution.getProblem ()
```

Here is the caller graph for this function:

**7.11.2.14 getSuccessor()**

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

Here is the caller graph for this function:

**7.11.2.15 getSuccessors()**

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

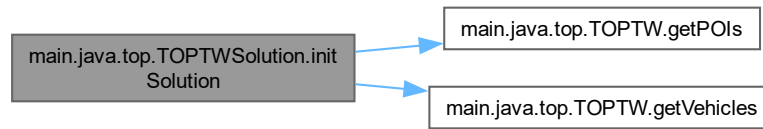
7.11.2.16 getWaitingTime()

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

7.11.2.17 `initSolution()`

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

Here is the call graph for this function:



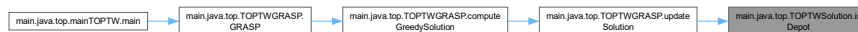
Here is the caller graph for this function:



7.11.2.18 `isDepot()`

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

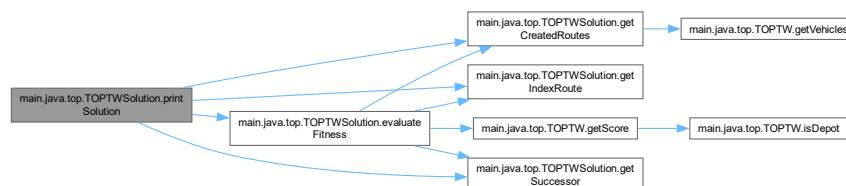
Here is the caller graph for this function:



7.11.2.19 `printSolution()`

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

Here is the call graph for this function:



7.11.2.20 setAvailableVehicles()

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

7.11.2.21 setObjectiveFunctionValue()

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

7.11.2.22 setPositionInRoute()

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

7.11.2.23 setPredecessor()

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

Here is the caller graph for this function:

**7.11.2.24 setSuccessor()**

```
void main.java.top.TOPTWSolution.setSuccessor (
    int customer,
    int sucesor)
```

Here is the caller graph for this function:

**7.11.2.25 setWaitingTime()**

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

7.11.3 Member Data Documentation

7.11.3.1 NO_INITIALIZED

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

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

- [src/main/java/top/TOPTWSolution.java](#)

Chapter 8

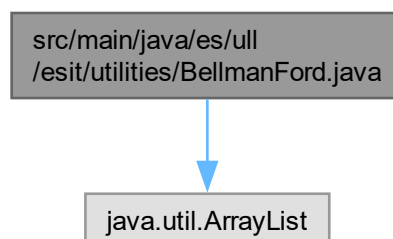
File Documentation

8.1 README.md File Reference

8.2 src/main/java/es/ull/esit/utilities/BellmanFord.java File Reference

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

Include dependency graph for BellmanFord.java:



Classes

- class [main.java.es.ull.esit.utilities.BellmanFord](#)

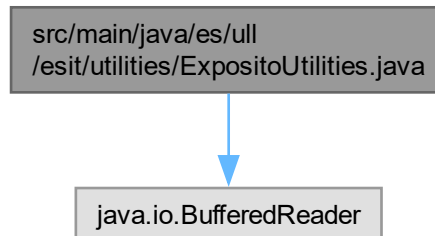
Packages

- package [main.java.es.ull.esit.utilities](#)

8.3 src/main/java/es/ull/esit/utilities/ExpositoUtilities.java File Reference

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

Include dependency graph for ExpositoUtilities.java:



Classes

- class [main.java.es.ull.esit.utilities.ExpositoUtilities](#)

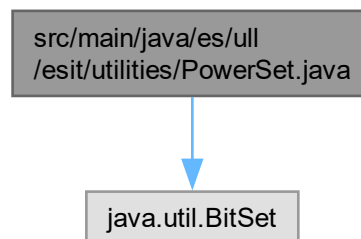
Packages

- package [main.java.es.ull.esit.utilities](#)

8.4 src/main/java/es/ull/esit/utilities/PowerSet.java File Reference

```
import java.util.BitSet;
```

Include dependency graph for PowerSet.java:



Classes

- class [main.java.es.ull.esit.utilities.PowerSet< E >](#)

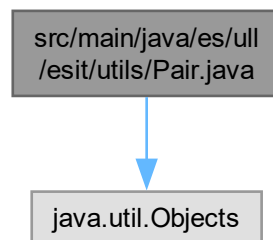
Packages

- package [main.java.es.ull.esit.utilities](#)

8.5 src/main/java/es/ull/esit/utills/Pair.java File Reference

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

Include dependency graph for Pair.java:



Classes

- class [main.java.es.ull.esit.utills.Pair< F, S >](#)

Packages

- package [main.java.es.ull.esit.utills](#)

8.6 src/main/java/top/mainTOPTW.java File Reference

Classes

- class [main.java.top.mainTOPTW](#)

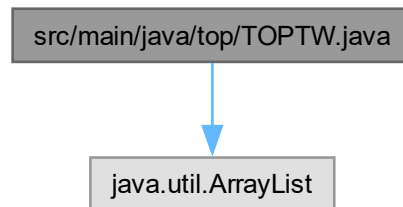
Packages

- package [main.java.top](#)

8.7 src/main/java/top/TOPTW.java File Reference

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

Include dependency graph for TOPTW.java:



Classes

- class [main.java.top.TOPTW](#)

Packages

- package [main.java.top](#)

8.8 src/main/java/top/TOPTWEvaluator.java File Reference

Classes

- class [main.java.top.TOPTWEvaluator](#)

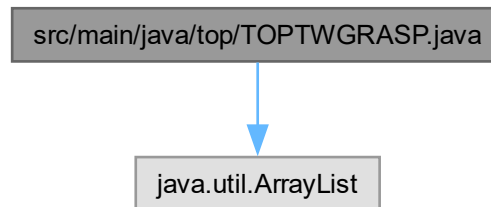
Packages

- package [main.java.top](#)

8.9 src/main/java/top/TOPTWGRASP.java File Reference

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

Include dependency graph for TOPTWGRASP.java:



Classes

- class [main.java.top.TOPTWGRASP](#)

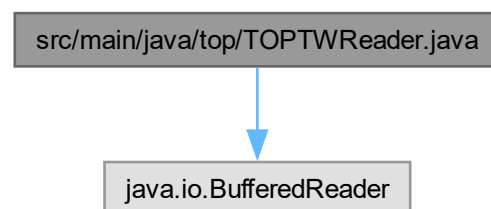
Packages

- package [main.java.top](#)

8.10 src/main/java/top/TOPTWReader.java File Reference

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

Include dependency graph for TOPTWReader.java:



Classes

- class [main.java.top.TOPTWReader](#)

Packages

- package [main.java.top](#)

8.11 src/main/java/top/TOPTWRoute.java File Reference

Classes

- class [main.java.top.TOPTWRoute](#)

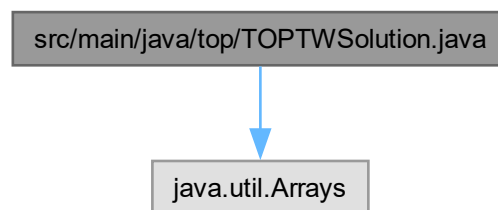
Packages

- package [main.java.top](#)

8.12 src/main/java/top/TOPTWSolution.java File Reference

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

Include dependency graph for TOPTWSolution.java:



Classes

- class [main.java.top.TOPTWSolution](#)

Packages

- package [main.java.top](#)