# eda12131190311906

1.0

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# **Chapter 1**

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2 Namespace Index

# Chapter 2

# **Hierarchical Index**

# 2.1 Class Hierarchy

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

eda12131190311906.ApplicationSettings
BackgroundWorker
eda12131190311906.AbortableBackgroundWorker
eda12131190311906.Bubble
eda12131190311906.Bucket
eda12131190311906.Comb
eda12131190311906.Counting
Form
eda12131190311906.FrmMain
eda12131190311906.Heap
IComparable < StopwatchEx >
eda12131190311906.StopwatchEx
IEquatable < StopwatchEx >
eda12131190311906.StopwatchEx
eda12131190311906.Insertion
eda12131190311906.Logging.LogEventArgs
eda12131190311906.Logging
eda12131190311906.Merge
eda12131190311906.Report.PlotLine
eda12131190311906.Quick
eda12131190311906.Radix
eda12131190311906.Report
eda12131190311906.Selection
eda12131190311906.Shell
Stopwatch
eda12131190311906.StopwatchEx
eda12131190311906.SystemHelper

**Hierarchical Index** 

# **Chapter 3**

# **Class Index**

# 3.1 Class List

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

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# **Chapter 4**

# **Namespace Documentation**

# 4.1 Package eda12131190311906

#### Classes

· class AbortableBackgroundWorker

Executes an operation on a separate thread. Can be aborted without a wait time

class ApplicationSettings

Application settings

· class Bubble

Bubble Sort Algorithm http://en.wikipedia.org/wiki/Bubblesort

· class Bucket

Bucket Sort Algorithm http://en.wikipedia.org/wiki/Bucket\_sort

class Comb

Comb Sort Algorithm http://en.wikipedia.org/wiki/Comb\_sort

· class Counting

Counting Sort Algorithm http://en.wikipedia.org/wiki/Counting\_sort

• class FrmMain

Main form / app

· class Heap

Heap Sort Algorithm http://en.wikipedia.org/wiki/Heapsort

class Insertion

Insertion Sort Algorithm http://en.wikipedia.org/wiki/Insertion\_sort

· class Logging

Loggin class, provide a log model to the application

class Merge

Merge Sort Algorithm http://en.wikipedia.org/wiki/Mergesort

· class Program

Main program

• class Quick

Quick Sort Algorithm http://en.wikipedia.org/wiki/Quicksort

· class Radix

Radix Sort Algorithm http://en.wikipedia.org/wiki/Radix\_sort

class Report

Report algorithm execution to file and grafs

· class Selection

Selection Sort Algorithm http://en.wikipedia.org/wiki/Selection\_sort

· class Shell

Shell Sort Algorithm http://en.wikipedia.org/wiki/Shell\_sort

class StopwatchEx

Provides a set of methods and properties that you can use to accurately measure elapsed time. Extended Version

class SystemHelper

System Helper Utilities

# 4.1.1 Detailed Description

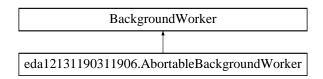
Estruturas de Dados e Algoritmos (EDA) - Project I Tiago Conceicao N 11903 Goncalo Lampreia N 11906 https-://code.google.com/p/eda12131190311906/

# **Chapter 5**

# **Class Documentation**

# 5.1 eda12131190311906.AbortableBackgroundWorker Class Reference

Executes an operation on a separate thread. Can be aborted without a wait time Inheritance diagram for eda12131190311906. Abortable Background Worker:



#### **Public Member Functions**

• void Abort ()

Abort operation immediately

• void AbortCancel ()

Abort operation immediately and try to cancel first

#### **Protected Member Functions**

override void OnDoWork (DoWorkEventArgs e)
 Occurs when M:System.ComponentModel.BackgroundWorker.RunWorkerAsync is called.

#### 5.1.1 Detailed Description

Executes an operation on a separate thread. Can be aborted without a wait time Definition at line 10 of file AbortableBackgroundWorker.cs.

# 5.1.2 Member Function Documentation

 $\textbf{5.1.2.1} \quad \textbf{void eda12131190311906.AbortableBackgroundWorker.Abort ( ) } \quad \texttt{[inline]}$ 

Abort operation immediately

Definition at line 37 of file AbortableBackgroundWorker.cs.

5.1.2.2 void eda12131190311906.AbortableBackgroundWorker.AbortCancel() [inline]

Abort operation immediately and try to cancel first

Definition at line 47 of file AbortableBackgroundWorker.cs.

**5.1.2.3** override void eda12131190311906.AbortableBackgroundWorker.OnDoWork ( DoWorkEventArgs e ) [inline], [protected]

Occurs when M:System.ComponentModel.BackgroundWorker.RunWorkerAsync is called.

Definition at line 20 of file AbortableBackgroundWorker.cs.

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

· AbortableBackgroundWorker.cs

# 5.2 eda12131190311906.ApplicationSettings Class Reference

Application settings

#### **Public Member Functions**

· ApplicationSettings ()

Constructor, with default settings

override string ToString ()

Get a string represetantion of this class

## **Static Public Member Functions**

• static void Reload (string filename)

Save settings to file

• static void Reload ()

Reload settings from default file

• static void Save (string filename)

Save settings to file

• static void Save ()

Save settings to default file

#### **Public Attributes**

const string Filename = "eda12131190311906.conf.xml"
 Default filename to save application settings

#### **Properties**

• static ApplicationSettings Instance [get]

Settings instance

• string ReportsPath [get, set]

Where to save reports to load with gnuplot

• string GnuplotFullPath [get, set]

Gnuplot executable path

• bool AutoOpenPlot [get, set]

Auto open generated plot files (Gnuplot required)

• byte NumberOfTests [get, set]

Number of tests to realize with sorting algorithms

• byte ComputeAverageValueWith [get, set]

Compute time average repeating same code block x times

bool CutLowerHigherAverageValue [get, set]

Cut lower and higher time values for compute a better average

• uint ArrayInitialSize [get, set]

Array initial size (First array size)

char ArrayGrowFactorType [get, set]

Array grow factor type

double ArrayGrowFactor [get, set]

Array grow factor

• uint ArrayMinRandomNumber [get, set]

Array min random number

• uint ArrayMaxRandomNumber [get, set]

Array max random number

char ArrayNumberGrowFactorType [get, set]

Array number grow factor type

double ArrayNumberGrowFactor [get, set]

Array numbers grow factor

• bool ArrayRandomBetweenValues [get, set]

Array random numbers between min and max values

#### 5.2.1 Detailed Description

Application settings

Definition at line 17 of file ApplicationSettings.cs.

#### 5.2.2 Constructor & Destructor Documentation

**5.2.2.1 eda12131190311906.ApplicationSettings.ApplicationSettings()** [inline]

Constructor, with default settings

Definition at line 132 of file ApplicationSettings.cs.

#### 5.2.3 Member Function Documentation

5.2.3.1 static void eda12131190311906.ApplicationSettings.Reload ( string filename ) [inline], [static]

Save settings to file

**Parameters** 

filename File to save settings

Definition at line 199 of file ApplicationSettings.cs.

**5.2.3.2** static void eda12131190311906.ApplicationSettings.Reload ( ) [inline], [static]

Reload settings from default file

Definition at line 221 of file ApplicationSettings.cs.

5.2.3.3 static void eda12131190311906.ApplicationSettings.Save (string filename) [inline], [static]

Save settings to file

**Parameters** 

filename | File to save settings

Definition at line 230 of file ApplicationSettings.cs.

**5.2.3.4 static void eda12131190311906.ApplicationSettings.Save()** [inline], [static]

Save settings to default file

Definition at line 247 of file ApplicationSettings.cs.

5.2.3.5 override string eda12131190311906.ApplicationSettings.ToString() [inline]

Get a string represetantion of this class

Returns

String represetantion of this class

Definition at line 159 of file ApplicationSettings.cs.

#### 5.2.4 Member Data Documentation

5.2.4.1 const string eda12131190311906.ApplicationSettings.Filename = "eda12131190311906.conf.xml"

Default filename to save application settings

Definition at line 23 of file ApplicationSettings.cs.

#### 5.2.5 Property Documentation

**5.2.5.1** double eda12131190311906.ApplicationSettings.ArrayGrowFactor [get], [set]

Array grow factor

Definition at line 100 of file ApplicationSettings.cs.

**5.2.5.2** char eda12131190311906.ApplicationSettings.ArrayGrowFactorType [get], [set]

Array grow factor type

Definition at line 95 of file ApplicationSettings.cs.

```
5.2.5.3 uint eda12131190311906.ApplicationSettings.ArrayInitialSize [get], [set]
Array initial size (First array size)
Definition at line 90 of file ApplicationSettings.cs.
5.2.5.4 uint eda12131190311906.ApplicationSettings.ArrayMaxRandomNumber [get], [set]
Array max random number
Definition at line 110 of file ApplicationSettings.cs.
5.2.5.5 uint eda12131190311906.ApplicationSettings.ArrayMinRandomNumber [get], [set]
Array min random number
Definition at line 105 of file ApplicationSettings.cs.
5.2.5.6 double eda12131190311906.ApplicationSettings.ArrayNumberGrowFactor [get], [set]
Array numbers grow factor
Definition at line 120 of file ApplicationSettings.cs.
5.2.5.7 char eda12131190311906.ApplicationSettings.ArrayNumberGrowFactorType [get], [set]
Array number grow factor type
Definition at line 115 of file ApplicationSettings.cs.
5.2.5.8 bool eda12131190311906.ApplicationSettings.ArrayRandomBetweenValues [get], [set]
Array random numbers between min and max values
Definition at line 125 of file ApplicationSettings.cs.
5.2.5.9 bool eda12131190311906.ApplicationSettings.AutoOpenPlot [get], [set]
Auto open generated plot files (Gnuplot required)
Definition at line 70 of file ApplicationSettings.cs.
5.2.5.10 byte eda12131190311906.ApplicationSettings.ComputeAverageValueWith [get], [set]
Compute time average repeating same code block x times
Definition at line 80 of file ApplicationSettings.cs.
5.2.5.11 bool eda12131190311906.ApplicationSettings.CutLowerHigherAverageValue [get], [set]
Cut lower and higher time values for compute a better average
Definition at line 85 of file ApplicationSettings.cs.
```

**5.2.5.12** string eda12131190311906.ApplicationSettings.GnuplotFullPath [get], [set]

Gnuplot executable path

Definition at line 65 of file ApplicationSettings.cs.

**5.2.5.13** ApplicationSettings eda12131190311906.ApplicationSettings.Instance [static], [get]

Settings instance

Definition at line 39 of file ApplicationSettings.cs.

**5.2.5.14** byte eda12131190311906.ApplicationSettings.NumberOfTests [get], [set]

Number of tests to realize with sorting algorithms

Definition at line 75 of file ApplicationSettings.cs.

**5.2.5.15** string eda12131190311906.ApplicationSettings.ReportsPath [get], [set]

Where to save reports to load with gnuplot

Definition at line 60 of file ApplicationSettings.cs.

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

· ApplicationSettings.cs

#### 5.3 eda12131190311906.Bubble Class Reference

Bubble Sort Algorithm http://en.wikipedia.org/wiki/Bubblesort

Static Public Member Functions

static void Sort (int[] A)
 Sort an array

#### 5.3.1 Detailed Description

Bubble Sort Algorithm http://en.wikipedia.org/wiki/Bubblesort Definition at line 13 of file Bubble.cs.

5.3.2 Member Function Documentation

 $\textbf{5.3.2.1} \quad \textbf{static void eda12131190311906.Bubble.Sort(int[] \textit{A} )} \quad \texttt{[inline],[static]}$ 

Sort an array

**Parameters** 

A | Array to sort

Definition at line 18 of file Bubble.cs.

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

• Bubble.cs

#### 5.4 eda12131190311906.Bucket Class Reference

Bucket Sort Algorithm http://en.wikipedia.org/wiki/Bucket\_sort

#### **Static Public Member Functions**

static void Sort (int[] A)
 Sort an array

#### 5.4.1 Detailed Description

Bucket Sort Algorithm http://en.wikipedia.org/wiki/Bucket\_sort Definition at line 17 of file Bucket.cs.

#### 5.4.2 Member Function Documentation

**5.4.2.1** static void eda12131190311906.Bucket.Sort(int[] A) [inline], [static]

Sort an array

**Parameters** 

A Array to sort

Definition at line 23 of file Bucket.cs.

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

· Bucket.cs

### 5.5 eda12131190311906.Comb Class Reference

Comb Sort Algorithm http://en.wikipedia.org/wiki/Comb\_sort

#### **Static Public Member Functions**

static void Sort (int[] A)Sort an array

### 5.5.1 Detailed Description

Comb Sort Algorithm http://en.wikipedia.org/wiki/Comb\_sort

Definition at line 13 of file Comb.cs.

#### 5.5.2 Member Function Documentation

**5.5.2.1** static void eda12131190311906.Comb.Sort(int[] A) [inline], [static]

Sort an array

**Parameters** 

A | Array to sort

Definition at line 18 of file Comb.cs.

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

· Comb.cs

# 5.6 eda12131190311906.Counting Class Reference

Counting Sort Algorithm http://en.wikipedia.org/wiki/Counting\_sort

#### **Static Public Member Functions**

static void Sort (int[] A)Sort an array

#### 5.6.1 Detailed Description

Counting Sort Algorithm http://en.wikipedia.org/wiki/Counting\_sort Definition at line 13 of file Counting.cs.

### 5.6.2 Member Function Documentation

**5.6.2.1 static void eda12131190311906.Counting.Sort (int[] A)** [inline], [static]

Sort an array

Parameters

A | Array to sort

Definition at line 18 of file Counting.cs.

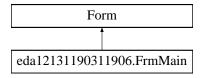
The documentation for this class was generated from the following file:

· Counting.cs

## 5.7 eda12131190311906.FrmMain Class Reference

Main form / app

Inheritance diagram for eda12131190311906.FrmMain:



#### **Public Member Functions**

• FrmMain ()

Constructor

#### **Protected Member Functions**

- · override void OnLoad (EventArgs e)
- override void Dispose (bool disposing)

Clean up any resources being used.

### **Properties**

• Stopwatch Stopwatcher [get, set]

Background operation timer

#### 5.7.1 Detailed Description

Main form / app

Definition at line 21 of file FrmMain.cs.

#### 5.7.2 Constructor & Destructor Documentation

**5.7.2.1 eda12131190311906.FrmMain.FrmMain()** [inline]

Constructor

Definition at line 34 of file FrmMain.cs.

# 5.7.3 Member Function Documentation

5.7.3.1 override void eda12131190311906.FrmMain.Dispose (bool disposing ) [inline], [protected]

Clean up any resources being used.

**Parameters** 

disposing true if managed resources should be disposed; otherwise, false.

Definition at line 14 of file FrmMain.Designer.cs.

#### 5.7.4 Property Documentation

**5.7.4.1 Stopwatch eda12131190311906.FrmMain.Stopwatcher** [get], [set]

Background operation timer

Definition at line 27 of file FrmMain.cs.

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

- · FrmMain.cs
- · FrmMain.Designer.cs

# 5.8 eda12131190311906.Heap Class Reference

```
Heap Sort Algorithm http://en.wikipedia.org/wiki/Heapsort
```

#### **Static Public Member Functions**

static void Sort (int[] A)Sort an array

### 5.8.1 Detailed Description

```
Heap Sort Algorithm http://en.wikipedia.org/wiki/Heapsort Definition at line 16 of file Heap.cs.
```

#### 5.8.2 Member Function Documentation

```
5.8.2.1 static void eda12131190311906.Heap.Sort(int[] A ) [inline], [static]
```

Sort an array

**Parameters** 

```
A | Array to sort
```

Definition at line 131 of file Heap.cs.

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

· Heap.cs

#### 5.9 eda12131190311906.Insertion Class Reference

```
Insertion Sort Algorithm http://en.wikipedia.org/wiki/Insertion_sort
```

#### **Static Public Member Functions**

static void Sort (int[] A)Sort an array

### 5.9.1 Detailed Description

```
Insertion Sort Algorithm http://en.wikipedia.org/wiki/Insertion_sort
Definition at line 13 of file Insertion.cs.
```

#### 5.9.2 Member Function Documentation

**5.9.2.1** static void eda12131190311906.Insertion.Sort(int[] A) [inline], [static]

Sort an array

**Parameters** 

A Array to sort

Definition at line 18 of file Insertion.cs.

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

· Insertion.cs

# 5.10 eda12131190311906.Logging.LogEventArgs Class Reference

Log event hander class

#### **Public Member Functions**

LogEventArgs (string text, bool isWriteLine, bool cleared)
 Constructor

#### **Properties**

```
• string AddedText [get, set]
```

New text added to log

• bool IsWriteLine [get, set]

Is text write using WriteLine

• bool Cleared [get, set]

Is text cleared and set to empty

# 5.10.1 Detailed Description

Log event hander class

Definition at line 22 of file Logging.cs.

#### 5.10.2 Constructor & Destructor Documentation

5.10.2.1 eda12131190311906.Logging.LogEventArgs.LogEventArgs ( string *text*, bool *isWriteLine*, bool *cleared* ) [inline]

Constructor

**Parameters** 

text Text

isWriteLine	Is text write using WriteLine
cleared	Is text cleared and set to empty

Definition at line 45 of file Logging.cs.

### 5.10.3 Property Documentation

**5.10.3.1** string eda12131190311906.Logging.LogEventArgs.AddedText [get], [set]

New text added to log

Definition at line 27 of file Logging.cs.

**5.10.3.2** bool eda12131190311906.Logging.LogEventArgs.Cleared [get], [set]

Is text cleared and set to empty

Definition at line 37 of file Logging.cs.

**5.10.3.3** bool eda12131190311906.Logging.LogEventArgs.lsWriteLine [get], [set]

Is text write using WriteLine

Definition at line 32 of file Logging.cs.

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

· Logging.cs

# 5.11 eda12131190311906.Logging Class Reference

Loggin class, provide a log model to the application

#### **Classes**

class LogEventArgs

Log event hander class

#### **Public Member Functions**

• delegate void LogEventHandler (Object sender, LogEventArgs e)

Log event handler delegate

• Logging ()

Constructor

• void Write (string text)

Write to log

· void WriteLine ()

Write a new line to log

void WriteLine (string text)

Write to log

• void Clear ()

Clear log text

bool WriteToFile (string path)

Write log to a default file (debug.log)

• void WriteToFile ()

Write log to a default file (debug.log)

#### **Protected Member Functions**

void OnLog (LogEventArgs args)

#### **Properties**

· LogEventHandler Log

Log event, raised when something writes to log

• string Header [get, set]

Gets or sets the log header text

• string LogText [get, set]

Gets the string holding log

#### 5.11.1 Detailed Description

Loggin class, provide a log model to the application

Definition at line 16 of file Logging.cs.

#### 5.11.2 Constructor & Destructor Documentation

```
5.11.2.1 eda12131190311906.Logging.Logging() [inline]
```

Constructor

Definition at line 111 of file Logging.cs.

#### 5.11.3 Member Function Documentation

```
5.11.3.1 void eda12131190311906.Logging.Clear( ) [inline]
```

Clear log text

Definition at line 150 of file Logging.cs.

5.11.3.2 delegate void eda12131190311906.Logging.LogEventHandler ( Object sender, LogEventArgs e )

Log event handler delegate

**Parameters** 

sender	
е	

5.11.3.3 void eda12131190311906.Logging.OnLog ( LogEventArgs args ) [inline], [protected]

**Parameters** 

args

Definition at line 85 of file Logging.cs.

**5.11.3.4** void eda12131190311906.Logging.Write ( string *text* ) [inline]

Write to log

**Parameters** 

text | Text to write

Definition at line 122 of file Logging.cs.

**5.11.3.5** void eda12131190311906.Logging.WriteLine( ) [inline]

Write a new line to log

Definition at line 131 of file Logging.cs.

5.11.3.6 void eda12131190311906.Logging.WriteLine ( string text ) [inline]

Write to log

**Parameters** 

text | Text to write

Definition at line 141 of file Logging.cs.

5.11.3.7 bool eda12131190311906.Logging.WriteToFile ( string path ) [inline]

Write log to a default file (debug.log)

**Parameters** 

path Path to save file

Returns

True if file write successfully, ortherwise false

Definition at line 161 of file Logging.cs.

5.11.3.8 void eda12131190311906.Logging.WriteToFile() [inline]

Write log to a default file (debug.log)

Returns

True if file write successfully, ortherwise false

Definition at line 190 of file Logging.cs.

#### 5.11.4 Property Documentation

**5.11.4.1 string eda12131190311906.Logging.Header** [get], [set]

Gets or sets the log header text

Definition at line 99 of file Logging.cs.

5.11.4.2 LogEventHandler eda12131190311906.Logging.Log [add], [remove]

Log event, raised when something writes to log

Definition at line 69 of file Logging.cs.

**5.11.4.3** string eda12131190311906.Logging.LogText [get], [set]

Gets the string holding log

Definition at line 104 of file Logging.cs.

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

· Logging.cs

# 5.12 eda12131190311906.Merge Class Reference

Merge Sort Algorithm http://en.wikipedia.org/wiki/Mergesort

#### **Static Public Member Functions**

- static void Sort (int[] A, int p, int q, int r)
  - Sort an array
- static void Sort (int[] A)

Sort an array

#### 5.12.1 Detailed Description

Merge Sort Algorithm http://en.wikipedia.org/wiki/Mergesort

Definition at line 13 of file Merge.cs.

#### 5.12.2 Member Function Documentation

**5.12.2.1** static void eda12131190311906.Merge.Sort(int[] A, int p, int q, int r) [inline], [static]

Sort an array

**Parameters** 

Α	Array to sort
р	Start index

q	Middle index
r	Right index

Definition at line 21 of file Merge.cs.

**5.12.2.2** static void eda12131190311906.Merge.Sort(int[] *A* ) [inline], [static]

Sort an array

**Parameters** 

Α	Array to sort

Definition at line 61 of file Merge.cs.

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

· Merge.cs

# 5.13 eda12131190311906.Report.PlotLine Class Reference

Report item class, represents a single line on gnuplot files

#### **Public Member Functions**

• PlotLine ()

Constructor

• PlotLine (string xAxis)

Constructor

• bool AddProfiler (StopwatchEx profiler)

Add a profiler

• StopwatchEx AddProfiler (bool run)

Add a profiler

• StopwatchEx AddProfiler ()

Add a profiler and run

#### **Properties**

• string XAxis [get, set]

X axis value for this line of results, 1st column on file

• List < StopwatchEx > Columns [get, set]

Line columns data, each column represents a StopwatchEx holding a TimeSpan with execution time

#### 5.13.1 Detailed Description

Report item class, represents a single line on gnuplot files

Definition at line 27 of file Report.cs.

5.13.2 Constructor & Destructor Documentation

5.13.2.1 eda12131190311906.Report.PlotLine.PlotLine( ) [inline]

Constructor

Definition at line 45 of file Report.cs.

5.13.2.2 eda12131190311906.Report.PlotLine(string xAxis) [inline]

Constructor

**Parameters** 

xAxis X axis name for this line

Definition at line 54 of file Report.cs.

#### 5.13.3 Member Function Documentation

5.13.3.1 bool eda12131190311906.Report.PlotLine.AddProfiler ( StopwatchEx profiler ) [inline]

Add a profiler

**Parameters** 

profiler Profiler to add

Returns

True if added, otherwise false (Duplicated name)

Definition at line 66 of file Report.cs.

5.13.3.2 StopwatchEx eda12131190311906.Report.PlotLine.AddProfiler (bool run ) [inline]

Add a profiler

**Parameters** 

run Start profiling or not

Returns

Profiler added to map

Definition at line 77 of file Report.cs.

5.13.3.3 StopwatchEx eda12131190311906.Report.PlotLine.AddProfiler( ) [inline]

Add a profiler and run

Returns

Profiler added to map

Definition at line 92 of file Report.cs.

### 5.13.4 Property Documentation

```
5.13.4.1 List < Stopwatch Ex > eda12131190311906. Report. PlotLine. Columns [get], [set]
```

Line columns data, each column represents a StopwatchEx holding a TimeSpan with execution time Definition at line 38 of file Report.cs.

```
5.13.4.2 string eda12131190311906.Report.PlotLine.XAxis [get], [set]
```

X axis value for this line of results, 1st column on file

Definition at line 33 of file Report.cs.

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

· Report.cs

### 5.14 eda12131190311906.Quick Class Reference

```
Quick Sort Algorithm http://en.wikipedia.org/wiki/Quicksort
```

#### **Static Public Member Functions**

• static void Sort (int[] A, int p, int r)

Sort an array

static void Sort (int[] A)

Sort an array

• static void RandomizedSort (int[] A, int p, int r)

Randomized sort

static void RandomizedSort (int[] A)

Randomized sort

• static void TailRecursiveSort (int[] A, int p, int r)

Tail recursive sort

• static void TailRecursiveSort (int[] A)

Tail recursive sort

### 5.14.1 Detailed Description

```
Quick Sort Algorithm http://en.wikipedia.org/wiki/Quicksort
```

Definition at line 16 of file Quick.cs.

#### 5.14.2 Member Function Documentation

```
5.14.2.1 static void eda12131190311906.Quick.RandomizedSort(int[] A, int p, int r) [inline], [static]
```

Randomized sort

#### **Parameters**

Α	Array to sort
р	Start index
r	End index

Definition at line 79 of file Quick.cs.

5.14.2.2 static void eda12131190311906.Quick.RandomizedSort(int[] A ) [inline], [static]

Randomized sort

**Parameters** 

Α	Array to sort

Definition at line 91 of file Quick.cs.

**5.14.2.3 static void eda12131190311906.Quick.Sort(int[]** *A*, **int** *p*, **int** *r*) [inline], [static]

Sort an array

#### **Parameters**

Α	Array to sort
р	Start index
r	End index

Definition at line 23 of file Quick.cs.

**5.14.2.4 static void eda12131190311906.Quick.Sort (int[] A )** [inline], [static]

Sort an array

**Parameters** 

Α	Array to sort

Definition at line 38 of file Quick.cs.

5.14.2.5 static void eda12131190311906.Quick.TailRecursiveSort(int[] A, int p, int r) [inline], [static]

Tail recursive sort

#### **Parameters**

A	Array to sort
р	Start index
r	End index

Definition at line 118 of file Quick.cs.

5.14.2.6 static void eda12131190311906.Quick.TailRecursiveSort(int[] A) [inline], [static]

Tail recursive sort

#### **Parameters**

A Array to sort

Definition at line 133 of file Quick.cs.

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

· Quick.cs

### 5.15 eda12131190311906.Radix Class Reference

Radix Sort Algorithm http://en.wikipedia.org/wiki/Radix\_sort

#### **Static Public Member Functions**

static void Sort (int[] A)Sort an array

#### 5.15.1 Detailed Description

Radix Sort Algorithm http://en.wikipedia.org/wiki/Radix\_sort Definition at line 16 of file Radix.cs.

#### 5.15.2 Member Function Documentation

**5.15.2.1 static void eda12131190311906.Radix.Sort(int[]A)** [inline], [static]

Sort an array

**Parameters** 

A Array to sort

Definition at line 21 of file Radix.cs.

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

· Radix.cs

# **5.16** eda12131190311906.Report Class Reference

Report algorithm execution to file and grafs

#### **Classes**

class PlotLine

Report item class, represents a single line on gnuplot files

## **Public Member Functions**

Report (string name)

Constructor

PlotLine GetPlotLine (string xAxis)

Get plot line based on X Axis value

• void WriteToFile (string path)

Write reports to a file

void WriteToFile ()

Write reports to a file

## **Static Public Member Functions**

static Report BuildMaster (List< Report > reports)

Build a master report holding and comparing all reports

• static void GenerateGnuplotFiles ()

Generate Gnuplot graf files

## **Properties**

```
• string Name [get, set]
```

Gets or sets the report name

• string XAxisLabel [get, set]

Gets or sets the X axis name / data name

• string YAxisLabel [get, set]

Gets or sets the Y axis name / data name

• List< string > Comments [get, set]

Comments to write on file header

• List< string > PlotTitles [get, set]

Plot data titles

List< PlotLine > PlotLines [get, set]

Plot lines holding all data

## 5.16.1 Detailed Description

Report algorithm execution to file and grafs

Definition at line 20 of file Report.cs.

## 5.16.2 Constructor & Destructor Documentation

**5.16.2.1 eda12131190311906.Report.Report ( string** *name* **)** [inline]

Constructor

**Parameters** 

name Report name

Definition at line 138 of file Report.cs.

# 5.16.3 Member Function Documentation

 $\textbf{5.16.3.1} \quad \textbf{static Report eda12131190311906.Report.BuildMaster (List < Report > \textit{reports} \text{)} \quad \texttt{[inline], [static]}$ 

Build a master report holding and comparing all reports

**Parameters** 

reports List with all reports to include

Returns

Master report

Definition at line 264 of file Report.cs.

5.16.3.2 static void eda12131190311906.Report.GenerateGnuplotFiles() [inline], [static]

Generate Gnuplot graf files

Definition at line 309 of file Report.cs.

5.16.3.3 PlotLine eda12131190311906.Report.GetPlotLine (string xAxis) [inline]

Get plot line based on X Axis value

**Parameters** 

xAxis X Axis value

Returns

PlotLine holding line data

Definition at line 153 of file Report.cs.

5.16.3.4 void eda12131190311906.Report.WriteToFile ( string path ) [inline]

Write reports to a file

**Parameters** 

path Path to save the file

Definition at line 169 of file Report.cs.

5.16.3.5 void eda12131190311906.Report.WriteToFile() [inline]

Write reports to a file

Definition at line 251 of file Report.cs.

5.16.4 Property Documentation

**5.16.4.1 List**<string> eda12131190311906.Report.Comments [get], [set]

Comments to write on file header

Definition at line 120 of file Report.cs.

**5.16.4.2 string eda12131190311906.Report.Name** [get], [set]

Gets or sets the report name

Definition at line 105 of file Report.cs.

```
5.16.4.3 List<PlotLine> eda12131190311906.Report.PlotLines [get], [set]
Plot lines holding all data
Definition at line 130 of file Report.cs.
5.16.4.4 List<string> eda12131190311906.Report.PlotTitles [get], [set]
Plot data titles
Definition at line 125 of file Report.cs.
5.16.4.5 string eda12131190311906.Report.XAxisLabel [get], [set]
Gets or sets the X axis name / data name
Definition at line 110 of file Report.cs.
5.16.4.6 string eda12131190311906.Report.YAxisLabel [get], [set]
Gets or sets the Y axis name / data name
Definition at line 115 of file Report.cs.
The documentation for this class was generated from the following file:
    · Report.cs
5.17
        eda12131190311906. Selection Class Reference
Selection Sort Algorithm http://en.wikipedia.org/wiki/Selection_sort
Static Public Member Functions
    • static void Sort (int[] A)
         Sort an array
5.17.1 Detailed Description
Selection Sort Algorithm http://en.wikipedia.org/wiki/Selection_sort
Definition at line 13 of file Selection.cs.
5.17.2 Member Function Documentation
5.17.2.1 static void eda12131190311906.Selection.Sort(int[] A ) [inline], [static]
Sort an array
Parameters
```

A Array to sort

Definition at line 18 of file Selection.cs.

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

· Selection.cs

## 5.18 eda12131190311906.Shell Class Reference

Shell Sort Algorithm http://en.wikipedia.org/wiki/Shell\_sort

## **Static Public Member Functions**

static void Sort (int[] A)
 Sort an array

## 5.18.1 Detailed Description

Shell Sort Algorithm http://en.wikipedia.org/wiki/Shell\_sort Definition at line 13 of file Shell.cs.

## 5.18.2 Member Function Documentation

**5.18.2.1** static void eda12131190311906.Shell.Sort(int[] A) [inline], [static]

Sort an array

**Parameters** 

A Array to sort

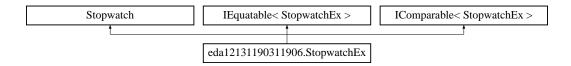
Definition at line 19 of file Shell.cs.

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

· Shell.cs

# 5.19 eda12131190311906.StopwatchEx Class Reference

Provides a set of methods and properties that you can use to accurately measure elapsed time. Extended Version Inheritance diagram for eda12131190311906. Stopwatch Ex:



#### **Public Member Functions**

StopwatchEx ()

Initializes a new instance of the T:eda12131190311906. StopwatchEx class.

StopwatchEx (TimeSpan editableElapsed)

Initializes a new instance of the T:eda12131190311906.StopwatchEx class.

bool Equals (StopwatchEx other)

Check if this object is equal to other

int CompareTo (StopwatchEx other)

Compare this object with other

## Static Public Member Functions

• static new StopwatchEx StartNew ()

Initializes a new T:eda12131190311906.StopwatchEx instance, sets the elapsed time property to zero, and starts measuring elapsed time.

static StopwatchEx ComputeAverage (List< StopwatchEx > list, bool cutLowerHigher)

Compute average value from a list of values

## **Properties**

• TimeSpan EditableElapsed [get, set]

Gets or sets the total elapsed time measured by the current instance.

• new double ElapsedMilliseconds [get]

Gets the total elapsed time measured by the current instance, in milliseconds.

• new long ElapsedTicks [get]

Gets the total elapsed time measured by the current instance, in timer ticks.

## 5.19.1 Detailed Description

Provides a set of methods and properties that you can use to accurately measure elapsed time. Extended Version Definition at line 19 of file StopwatchEx.cs.

### 5.19.2 Constructor & Destructor Documentation

```
5.19.2.1 eda12131190311906.StopwatchEx.StopwatchEx() [inline]
```

Initializes a new instance of the T:eda12131190311906. Stopwatch Ex class.

Definition at line 59 of file StopwatchEx.cs.

5.19.2.2 eda12131190311906.StopwatchEx.StopwatchEx ( TimeSpan editableElapsed ) [inline]

Initializes a new instance of the T:eda12131190311906. StopwatchEx class.

**Parameters** 

editableElapsed

Definition at line 68 of file StopwatchEx.cs.

## 5.19.3 Member Function Documentation

5.19.3.1 int eda12131190311906.StopwatchEx.CompareTo ( StopwatchEx other ) [inline]

Compare this object with other

#### **Parameters**

other	Other object
-------	--------------

#### Returns

-1 if is lower, 0 if equals, 1 if is higher

Definition at line 103 of file StopwatchEx.cs.

5.19.3.2 static StopwatchEx eda12131190311906.StopwatchEx.ComputeAverage ( List< StopwatchEx > list, bool cutLowerHigher ) [inline], [static]

Compute average value from a list of values

#### **Parameters**

list	List with all values
cutLowerHigher	If true the lower and higher values will be cut from calculations

Definition at line 123 of file StopwatchEx.cs.

5.19.3.3 bool eda12131190311906.StopwatchEx.Equals ( StopwatchEx other ) [inline]

Check if this object is equal to other

#### **Parameters**

other	Other object

## Returns

True if is equal, otherwise false

Definition at line 93 of file StopwatchEx.cs.

5.19.3.4 static new StopwatchEx eda12131190311906.StopwatchEx.StartNew() [inline], [static]

Initializes a new T:eda12131190311906.StopwatchEx instance, sets the elapsed time property to zero, and starts measuring elapsed time.

#### Returns

A T:eda12131190311906.StopwatchEx that has just begun measuring elapsed time.

<filterpriority>1</filterpriority>

Definition at line 81 of file StopwatchEx.cs.

## 5.19.4 Property Documentation

 $\textbf{5.19.4.1} \quad \textbf{TimeSpan eda12131190311906.StopwatchEx.EditableElapsed} \quad [\texttt{get}], [\texttt{set}]$ 

Gets or sets the total elapsed time measured by the current instance.

## Returns

A read-only T:System.TimeSpan representing the total elapsed time measured by the current instance.

Definition at line 28 of file StopwatchEx.cs.

5.19.4.2 new double eda12131190311906.StopwatchEx.ElapsedMilliseconds [get]

Gets the total elapsed time measured by the current instance, in milliseconds.

#### Returns

A read-only double representing the total number of milliseconds measured by the current instance.

```
<filterpriority>1</filterpriority>
```

Definition at line 39 of file StopwatchEx.cs.

```
5.19.4.3 new long eda12131190311906.StopwatchEx.ElapsedTicks [get]
```

Gets the total elapsed time measured by the current instance, in timer ticks.

## Returns

A read-only long integer representing the total number of timer ticks measured by the current instance.

```
<filterpriority>1</filterpriority>
```

Definition at line 52 of file StopwatchEx.cs.

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

StopwatchEx.cs

# 5.20 eda12131190311906.SystemHelper Class Reference

System Helper Utilities

## **Static Public Member Functions**

• static string GetProgramFilesX86Path ()

Get program files X86 path, windows only

• static bool IsWindows ()

Is windows OS

• static bool IsUnix ()

Is UNIX OS

static int[] RandomIntegerArray (int size, int maxValue)

Generate a random integer array

static int[] RandomIntegerArray (int size, int minValue, int maxValue)

Generate a random integer array

static List< int[]> CloneListIntArray (List< int[]> list)

Clone an List int[]

static string ArrayToString
 T > (T[] list)

Convert an array to string

static string ArrayToString
 T > (T[] list, int limit)

Convert an array to string

• static void OpenLink (string address)

Open website link

## 5.20.1 Detailed Description

System Helper Utilities

Definition at line 21 of file SystemHelper.cs.

## 5.20.2 Member Function Documentation

5.20.2.1 static string eda12131190311906. System Helper. Array To String < T > ( T[] list ) [inline], [static]

Convert an array to string

**Template Parameters** 

T	

**Parameters** 

```
list
```

Returns

Definition at line 105 of file SystemHelper.cs.

5.20.2.2 static string eda12131190311906.SystemHelper.ArrayToString < T > ( T[] list, int limit ) [inline], [static]

Convert an array to string

**Template Parameters** 

T	Array class

## **Parameters**

list	List with arrays
limit	Elements limit to output to string

#### Returns

A formated string

Definition at line 117 of file SystemHelper.cs.

5.20.2.3 static List < int[]> eda12131190311906.SystemHelper.CloneListIntArray ( List < int[]> list ) [inline], [static]

Clone an List int[]

**Parameters** 

list	list List to clone

Returns

Cloned list

Definition at line 94 of file SystemHelper.cs.

5.20.2.4 static string eda12131190311906.SystemHelper.GetProgramFilesX86Path() [inline], [static]

Get program files X86 path, windows only

Returns

Program files X86 path

Definition at line 26 of file SystemHelper.cs.

5.20.2.5 static bool eda12131190311906.SystemHelper.lsUnix() [inline], [static]

Is UNIX OS

Returns

True if Unix, otherwise false

Definition at line 53 of file SystemHelper.cs.

5.20.2.6 static bool eda12131190311906.SystemHelper.lsWindows() [inline], [static]

Is windows OS

Returns

True if Windows, otherwise false

Definition at line 44 of file SystemHelper.cs.

5.20.2.7 static void eda12131190311906.SystemHelper.OpenLink( string address ) [inline], [static]

Open website link

**Parameters** 

address	URL address

Definition at line 140 of file SystemHelper.cs.

5.20.2.8 static int [] eda12131190311906.SystemHelper.RandomIntegerArray ( int *size*, int *maxValue* ) [inline], [static]

Generate a random integer array

Parameters

size	Size of array
maxValue	Max value for random numbers

Returns

An array populated with random values

Definition at line 65 of file SystemHelper.cs.

5.20.2.9 static int [] eda12131190311906.SystemHelper.RandomIntegerArray ( int *size*, int *minValue*, int *maxValue* ) [inline], [static]

Generate a random integer array

## **Parameters**

size	Size of array
minValue	Min value for random numbers
maxValue	Max value for random numbers

## Returns

An array populated with random values

Definition at line 77 of file SystemHelper.cs.

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

• SystemHelper.cs

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