AlgorithmAnalysis

1.0

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Contents

Chapter 1

File Index

1.1 File List

Here is a list of all files with brief descriptions:

Chapter 2

File Documentation

2.1 src/aux.cpp File Reference

```
#include "aux.h"
```

Functions

- void **createRandomArray** (int V[ ], int n, int maxInteger)

  Creates a random integer array between 0 and.
- void **copyArray** (int V[ ], int W[ ], int n)
- bool **checkSameLength** (int V[ ], int W[ ])
- bool **checkArrayEquality** (int V[ ], int W[ ], int n)
- bool **checkIsOrdered** (int V[ ], int n)
- void **printArrayContents** (int V[ ], int n)

2.1.1 Function Documentation

2.1.1.1 bool checkArrayEquality (int *V[ ],* int *W[ ],* int *n*)

2.1.1.2 bool checkIsOrdered (int *V[ ],* int *n*)

2.1.1.3 bool checkSameLength (int *V[ ],* int *W[ ]*)

2.1.1.4 void copyArray (int *V[ ],* int *W[ ],* int *n*)

2.1.1.5 void createRandomArray (int *V[ ],* int *n,* int *maxInteger*)

Creates a random integer array between 0 and.

2.1.1.6 void printArrayContents (int *V[ ]*, int *n*)

2.2 src/aux.h File Reference

```
#include <time.h> #include <cstdlib> #include <iostream> ×
#include "ordenacion.h" #include <fstream> #include <iomanip> ×
```

Functions

- void **createRandomArray** (int V[ ], int arrayLegth, int maxInteger)

  Creates a random integer array between 0 and.
- void **copyArray** (int V[ ], int W[ ], int n)
- bool **checkArrayEquality** (int V[ ], int W[ ], int n)
- bool **checkIsOrdered** (int V[ ], int n)
- void **printArrayContents** (int V[ ], int n)

2.2.1 Function Documentation

2.2.1.1 bool checkArrayEquality (int *V[ ]*, int *W[ ]*, int *n*)

2.2.1.2 bool checkIsOrdered (int *V[ ]*, int *n*)

2.2.1.3 void copyArray (int *V[ ]*, int *W[ ]*, int *n*)

2.2.1.4 void createRandomArray (int *V[ ]*, int *arrayLegth*, int *maxInteger*)

Creates a random integer array between 0 and.

2.2.1.5 void printArrayContents (int *V[ ]*, int *n*)

2.3 src/generators.cpp File Reference

```
#include "generators.h"
```

Functions

- void **generateInsertionSortTime** (ofstream &file, int V[ ], int n)
- void **generateSelectionSortTime** (ofstream &file, int V[ ], int n)
- void **generateBubbleSortTime** (ofstream &file, int V[ ], int n)
- void **generateQuickSortTime** (ofstream &file, int V[ ], int n)
- void **generateInsertionSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateSelectionSortDataFile** (int problemSize, int V[ ], int GAP)

- void **generateBubbleSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateQuickSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateAllFiles** (int problemSize, int V[ ], int GAP)

2.3.1 Function Documentation

2.3.1.1 void generateAllFiles (int *problemSize,* int *V[ ],* int *GAP*)

2.3.1.2 void generateBubbleSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.3.1.3 void generateBubbleSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.3.1.4 void generateInsertionSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.3.1.5 void generateInsertionSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.3.1.6 void generateQuickSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.3.1.7 void generateQuickSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.3.1.8 void generateSelectionSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.3.1.9 void generateSelectionSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.4 src/generators.h File Reference

```
#include "aux.h"
```

Functions

- void **generateInsertionSortTime** (ofstream &file, int V[ ], int n)
- void **generateSelectionSortTime** (ofstream &file, int V[ ], int n)
- void **generateBubbleSortTime** (ofstream &file, int V[ ], int n)
- void **generateQuickSortTime** (ofstream &file, int V[ ], int n)
- void **generateInsertionSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateSelectionSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateBubbleSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateQuickSortDataFile** (int problemSize, int V[ ], int GAP)
- void **generateAllFiles** (int problemSize, int V[ ], int GAP)

2.4.1 Function Documentation

2.4.1.1 void generateAllFiles (int *problemSize,* int *V[ ],* int *GAP*)

2.4.1.2 void generateBubbleSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.4.1.3 void generateBubbleSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.4.1.4 void generateInsertionSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.4.1.5 void generateInsertionSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.4.1.6 void generateQuickSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.4.1.7 void generateQuickSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.4.1.8 void generateSelectionSortDataFile (int *problemSize,* int *V[ ],* int *GAP*)

2.4.1.9 void generateSelectionSortTime (ofstream & *file,* int *V[ ],* int *n*)

2.5 src/interaction.cpp File Reference

```
#include "interaction.h" #include <iostream>
```

Functions

- int **getProblemSize** ()

  Sets problem's size (random array's size)
- int **getMaximumInteger** ()
- int **getGap** ()
- char **chooseAlgorithm** ()

2.5.1 Function Documentation

2.5.1.1 char chooseAlgorithm ( )

2.5.1.2 int getGap ( )

2.5.1.3 int getMaximumInteger ( )

2.5.1.4 int getProblemSize ( )

Sets problem's size (random array's size)

Returns

a positive integer that will represent problem's size hereinafter

2.6 src/interaction.h File Reference

Functions

- int **getProblemSize** ()

  Sets problem's size (random array's size)
- int **getMaximumInteger** ()
- int **getGap** ()
- char **chooseAlgorithm** ()

2.6.1 Function Documentation

2.6.1.1 char chooseAlgorithm ( )

2.6.1.2 int getGap ( )

2.6.1.3 int getMaximumInteger ( )

2.6.1.4 int getProblemSize ( )

Sets problem's size (random array's size)

Returns

a positive integer that will represent problem's size hereinafter

2.7 src/main.cpp File Reference

```
#include "test.h" #include "interaction.h" #include "generators.-
h"
```

Functions

- int **main** ()

2.7.1 Function Documentation

2.7.1.1 int main ( )

2.8 src/ordenacion.cpp File Reference

```
#include "ordenacion.h"
```

Functions

- void **insertionSort** (int V[ ], int num)
- void **selectionSort** (int V[ ], int num)
- void **bubbleSort** (int V[ ], int num)
- void **quickSort** (int V[ ], int left, int right)

2.8.1 Function Documentation

2.8.1.1 void bubbleSort (int *V[ ],* int *num*)

2.8.1.2 void insertionSort (int *V[ ],* int *num*)

2.8.1.3 void quickSort (int *V[ ],* int *left,* int *right*)

2.8.1.4 void selectionSort (int *V[ ],* int *num*)

2.9 src/ordenacion.h File Reference

Functions

- void **insertionSort** (int V[ ], int num)
- void **selectionSort** (int V[ ], int num)
- void **bubbleSort** (int V[ ], int num)
- void **quickSort** (int V[ ], int left, int right)

2.9.1 Function Documentation

2.9.1.1 void bubbleSort (int *V[ ],* int *num*)

2.9.1.2 void insertionSort (int *V[ ],* int *num*)

2.9.1.3 void quickSort (int *V[ ],* int *left,* int *right*)

2.9.1.4 void selectionSort (int *V[ ],* int *num*)

2.10 src/test.cpp File Reference

```
#include "test.h"
```

Functions

- void **makeFourCopies** (int V[ ], int first[ ], int second[ ], int third[ ], int fourth[ ], int n)
- void **generateArray** (int V[ ], int n, int maxInt)

  Generates an array with n random integers betwwen 0 and maxInt.

2.10.1 Function Documentation

2.10.1.1 void generateArray (int *V[ ]*, int *n*, int *maxInt*)

Generates an array with n random integers betwwen 0 and maxInt.

Parameters

V	the container array with a size of n
n	The array length
maxInt	maximum integer to generate arraty to

2.10.1.2 void makeFourCopies (int *V[ ]*, int *first[ ]*, int *second[ ]*, int *third[ ]*, int *fourth[ ]*, int *n*)

2.11 src/test.h File Reference

```
#include "aux.h"
```

Functions

- void **generateArray** (int V[ ], int n, int maxInt)

  Generates an array with n random integers betwwen 0 and maxInt.
- void **makeFourCopies** (int V[ ], int first[ ], int second[ ], int third[ ], int fourth[ ], int n)

2.11.1 Function Documentation

2.11.1.1 void generateArray (int *V[ ]*, int *n*, int *maxInt*)

Generates an array with n random integers betwwen 0 and maxInt.

Parameters

V	the container array with a size of n
n	The array length
maxInt	maximum integer to generate arraty to

2.11.1.2 void makeFourCopies (int *V[ ]*, int *first[ ]*, int *second[ ]*, int *third[ ]*, int *fourth[ ]*, int *n*)