QuickSort

0.3.0

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Chapter 1

Class Index

1.1 Class List

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

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Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

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Chapter 3

Class Documentation

3.1 Sorting Class Reference

Public Member Functions

- Sorting (vector< int > v)
- void quickSort (vector< int > &a)
- void quickSort (vector< int > &a, int i, int n)
- void printArray (vector< int > c)

3.1.1 Detailed Description

Definition at line 17 of file main.cpp.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 Sorting()

```
Sorting::Sorting (
            vector< int > v )  [inline]
```

Definition at line 21 of file main.cpp.

```
21                          {
22         vect = v;
23     }
```

3.1.3 Member Function Documentation

3.1.3.1 printArray()

```
void Sorting::printArray (
            vector< int > c )  [inline]
```

Definition at line 48 of file main.cpp.

```
49 {
50     int i;
51     for (i=0; i < c.size(); i++)
52         printf("%d ", c[i]);
53     printf("\n");
54 }
```

3.1.3.2 quickSort() [1/2]

```
void Sorting::quickSort (
            vector< int > & a )  [inline]
```

Definition at line 25 of file main.cpp.

```
25                                  {
26         quickSort(a, 0, a.size());
27 }
```

3.1.3.3 quickSort() [2/2]

```
void Sorting::quickSort (
            vector< int > & a,
            int i,
            int n )  [inline]
```

Definition at line 28 of file main.cpp.

```
28                                                  {
29         if (n <= 1) return;
30         int x = a[i + rand()%n];
31         int p = i-1, j = i, q = i+n;
32         // a[i..p]<x, a[p+1..q-1]??x, a[q..i+n-1]>x
33         while (j < q) {
34             int comp = a[j] - x;
35             if (comp < 0) { // move to beginning of array
36                 iter_swap(a.begin() + j++, a.begin() + (++p));
37             } else if (comp > 0) {
38                 iter_swap(a.begin() + j,a.begin() + --q); // move to end of array
39             } else {
40                 j++; // keep in the middle
41             }
42         }
43         // a[i..p]<x, a[p+1..q-1]=x, a[q..i+n-1]>x
44         quickSort(a, i, p-i+1);
45         quickSort(a, q, n-(q-i));
46 }
```

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

- /home/addis/Sorting-1/src/main.cpp

Chapter 4

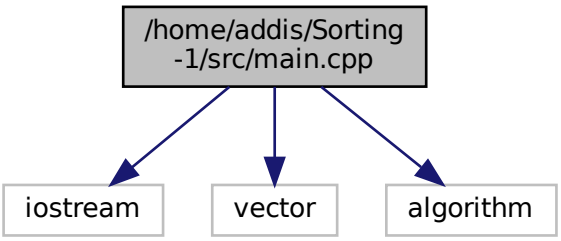
File Documentation

4.1 /home/addis/Sorting-1/src/main.cpp File Reference

This is a quick sorting.

```
#include <iostream>
#include <vector>
#include <algorithm>
```

Include dependency graph for main.cpp:



Classes

- class Sorting

Functions

- int main (int, char **)

4.1.1 Detailed Description

This is a quick sorting.

This is the long brief at the top of main.cpp.

Author

Addis Bogale

Date

4/15/2021

4.1.2 Function Documentation

4.1.2.1 main()

```
int main (
              int ,
              char **  )
```

Definition at line 58 of file main.cpp.

```
58                      {
59     vector<int> value = {3,8,5,6,9};
60     Sorting test(value);
61     cout « "Sort this vector using quick sort" « endl;
62     test.printArray(value);
63
64     cout « "Sorted vector" « endl;
65     test.quickSort(value);
66     test.printArray(value);
67
68 }
```

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