sorting

0.1.0

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Chapter 1

Class Index

1.1 Class List

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

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

Class Documentation

3.1 heapsort Class Reference

Public Member Functions

- int left (int i)
- int right (int i)
- int parent (int i)
- int compare (int x, int y)
- void myswap (int i, int p)
- void trickleDown (int i)
- void BinaryHeap ()
- void reverse ()
- void sort ()
- void print ()

Public Attributes

- int a [alength] = {21,37,426,0,1212,49,814,100,61,3,76,30,705,84,1995,98,12,25,7,55}
- int n = 20

Static Public Attributes

- static const int alength = 20

3.1.1 Detailed Description

Definition at line 14 of file main.cpp.

3.1.2 Member Function Documentation

3.1.2.1 BinaryHeap()

```
void heapsort::BinaryHeap ( )  [inline]
```

Definition at line 68 of file main.cpp.

```
68                          {
69             n = alength;
70             for (int i = n/2-1; i >= 0; i--) {
71                 trickleDown(i);
72             }
73         }
```

3.1.2.2 compare()

```
int heapsort::compare (
            int x,
            int y )  [inline]
```

Definition at line 30 of file main.cpp.

```
30                                  {
31             if (x < y)
32                 return -1;
33             else if (x > y)
34                 return 1;
35             else
36                 return 0;
37         }
```

3.1.2.3 left()

```
int heapsort::left (
            int i )  [inline]
```

Definition at line 20 of file main.cpp.

```
20                          {
21             return 2*i + 1;
22         }
```

3.1.2.4 myswap()

```
void heapsort::myswap (
            int i,
            int p )  [inline]
```

Definition at line 39 of file main.cpp.

```
39                                  {
40             int temp;
41             temp = a[i];
42             a[i] = a[p];
43             a[p] = temp;
44         }
```

3.1.2.5 parent()

```
int heapsort::parent (
            int i )  [inline]
```

Definition at line 26 of file main.cpp.

```
26                          {
27              return (i-1)/2;
28          }
```

3.1.2.6 print()

```
void heapsort::print ( )  [inline]
```

Definition at line 89 of file main.cpp.

```
89                          {
90          for (int i = 0; i < alength; i++)
91              std::cout « a[i] « " ";
92          std::cout « endl;
93          }
```

3.1.2.7 reverse()

```
void heapsort::reverse ( )  [inline]
```

Definition at line 75 of file main.cpp.

```
75                          {
76          for (int i =0; i < alength/2; i++)
77              myswap(i,(alength-i-1));
78          }
```

3.1.2.8 right()

```
int heapsort::right (
            int i )  [inline]
```

Definition at line 23 of file main.cpp.

```
23                          {
24              return 2*i + 2;
25          }
```

3.1.2.9 sort()

```
void heapsort::sort ( )  [inline]
```

Definition at line 80 of file main.cpp.

```
80                          {
81              BinaryHeap();
82              while (n > 1) {
83                  myswap(--n, 0);
84                  trickleDown(0);
85              }
86              reverse();
87          }
```

3.1.2.10 trickleDown()

```
void heapsort::trickleDown (
            int i )  [inline]
```

Definition at line 46 of file main.cpp.

```
46                                  {
47             do {
48                 int j = -1;
49                 int r = right(i);
50                 if (r < n && compare(a[r], a[i]) < 0) {
51                     int l = left(i);
52                     if (compare(a[l], a[r]) < 0) {
53                         j = l;
54                     } else {
55                         j = r;
56                     }
57                 } else {
58                     int l = left(i);
59                     if (l < n && compare(a[l], a[i]) < 0) {
60                         j = l;
61                     }
62                 }
63                 if (j >= 0) myswap(i, j);
64                 i = j;
65             } while (i >= 0);
66         }
```

3.1.3 Member Data Documentation

3.1.3.1 a

```
int heapsort::a[alength] = {21,37,426,0,1212,49,814,100,61,3,76,30,705,84,1995,98,12,25,7,55}
```

Definition at line 17 of file main.cpp.

3.1.3.2 alength

```
const int heapsort::alength = 20  [static]
```

Definition at line 16 of file main.cpp.

3.1.3.3 n

```
int heapsort::n = 20
```

Definition at line 18 of file main.cpp.

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

- /home/brandon/CPTR227/HW15/sorting/src/main.cpp

Chapter 4

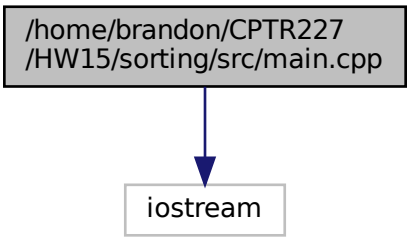
File Documentation

4.1 /home/brandon/CPTR227/HW15/sorting/src/main.cpp File Reference

This is Homework 15-Sorting for CPTR 227.

```
#include <iostream>
```

Include dependency graph for main.cpp:



Classes

- class heapsort

Functions

- int main ()

4.1.1 Detailed Description

This is Homework 15-Sorting for CPTR 227.

This is implementation of Heap Sorting.

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Date

4/19/2021

4.1.2 Function Documentation

4.1.2.1 main()

```
int main ( )
```

Definition at line 97 of file main.cpp.

```
97            {
98     heapsort h;
99     cout « "This is before sorting" « endl;
100     h.print();
101     h.sort();
102     cout « "This is after sorting" « endl;
103     h.print();
104 }
```

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