

Heaps

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:

BTNode	5
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Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

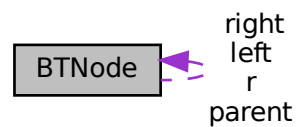
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Chapter 3

Class Documentation

3.1 BTreeNode Class Reference

Collaboration diagram for BTreeNode:



Public Member Functions

- [BTreeNode](#) ()
- int [nodeData](#) ()
- int [compare](#) (int y, int z)
- [BTreeNode](#) * [merge](#) ([BTreeNode](#) *h1, [BTreeNode](#) *h2)
- bool [add](#) (int x)
- bool [remove](#) ()
- void [printBT](#) (const string &prefix, [BTreeNode](#) *node, bool isLeft)
- void [printBT](#) ()

Public Attributes

- [BTreeNode](#) * [parent](#)
- [BTreeNode](#) * [right](#)
- [BTreeNode](#) * [left](#)
- int x
- int [count](#)
- [BTreeNode](#) * r = NULL

3.1.1 Detailed Description

Add two integers (brief)

Adds a and b, two integers (long description)

Parameters

<i>a</i>	integer
<i>b</i>	integer

Returns

integer sum of a and b

Definition at line 23 of file main.cpp.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 BTreeNode()

```
BTreeNode::BTreeNode ( ) [inline]
```

Definition at line 32 of file main.cpp.

```
32     {
33         left = NULL;
34         right = NULL;
35         parent = NULL;
36         x = 0;
37         r = NULL;
38         count = 0;
39     }
```

3.1.3 Member Function Documentation

3.1.3.1 add()

```
bool BTreeNode::add (
    int x ) [inline]
```

Definition at line 72 of file main.cpp.

```
72     {
73         BTreeNode* u = new BTreeNode();
74         u->left = u->right = u->parent = NULL;
75         parent = NULL;
76         u->x = x;
77         r = merge(u, r);
78         r->parent = NULL;
79         count++;
80         return true;
81     }
```

3.1.3.2 compare()

```
int BTreeNode::compare (
    int y,
    int z ) [inline]
```

Definition at line 45 of file main.cpp.

```
45         {
46     if (z > y)
47         return z;
48     if (y > z)
49         return y;
50 }
```

3.1.3.3 merge()

```
BTreeNode* BTreeNode::merge (
    BTreeNode * h1,
    BTreeNode * h2 ) [inline]
```

Definition at line 52 of file main.cpp.

```
52         {
53     if (h1 == NULL)
54         return h2;
55     if (h2 == NULL)
56         return h1;
57
58     if ((h2->x - h1->x) < 0)
59         return merge(h2,h1);
60
61     if (rand() % 2){
62         h1->left = merge(h1->left, h2);
63         if (h1->left != NULL)
64             h1->left->parent = h1;
65     }else{
66         h1->right = merge(h1->right, h2);
67         if (h1->right != NULL)
68             h1->right->parent = h1;
69     }
70     return h1;
71 }
```

3.1.3.4 nodeData()

```
int BTreeNode::nodeData ( ) [inline]
```

Definition at line 41 of file main.cpp.

```
41     {
42     return(x);
43 }
```

3.1.3.5 printBT() [1/2]

```
void BTreeNode::printBT ( ) [inline]
```

Definition at line 111 of file main.cpp.

```
112 {
113     printBT("", r, false);
114 }
```

3.1.3.6 printBT() [2/2]

```
void BTreeNode::printBT (
    const string & prefix,
    BTreeNode * node,
    bool isLeft ) [inline]
```

Definition at line 93 of file main.cpp.

```
94 {
95     if( node != NULL )
96     {
97         cout << prefix;
98
99         cout << (isLeft ? "|--" : "--" );
100
101         // print the value of the node
102         //cout << node->nodeName() << ':' << node->nodeData() << std::endl;
103         cout << node->nodeData() << std::endl;
104
105         // enter the next tree level - left and right branch
106         printBT( prefix + (isLeft ? "| " : " "), node->left, true);
107         printBT( prefix + (isLeft ? "| " : " "), node->right, false);
108     }
109 }
```

3.1.3.7 remove()

```
bool BTreeNode::remove ( ) [inline]
```

Definition at line 83 of file main.cpp.

```
83     {
84         int x = r->x;
85         BTreeNode* tmp = r;
86         r = merge(r->left, r->right);
87         delete tmp;
88         if (r != NULL)
89             r->parent = NULL;
90         count--;
91         return r;
92     }
```

3.1.4 Member Data Documentation

3.1.4.1 count

```
int BTreeNode::count
```

Definition at line 29 of file main.cpp.

3.1.4.2 left

```
BTreeNode* BTreeNode::left
```

Definition at line 27 of file main.cpp.

3.1.4.3 parent

```
BTNode* BTNode::parent
```

Definition at line 25 of file main.cpp.

3.1.4.4 r

```
BTNode* BTNode::r = NULL
```

Definition at line 30 of file main.cpp.

3.1.4.5 right

```
BTNode* BTNode::right
```

Definition at line 26 of file main.cpp.

3.1.4.6 x

```
int BTNode::x
```

Definition at line 28 of file main.cpp.

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

- [/home/addis/Heaps/src/main.cpp](#)

Chapter 4

File Documentation

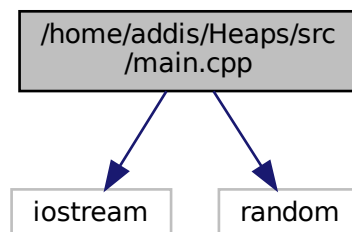
4.1 /home/addis/Heaps/src/main.cpp File Reference

This is a test of CMake, doxygen, and GitHub.

```
#include <iostream>
```

```
#include <random>
```

Include dependency graph for main.cpp:



Classes

- class `BTNode`

Functions

- int `main()`

4.1.1 Detailed Description

This is a test of CMake, doxygen, and GitHub.

This is the long brief at the top of [main.cpp](#).

Author

Seth McNeill

Date

1/28/2021

4.1.2 Function Documentation

4.1.2.1 main()

```
int main ( )
```

Definition at line 118 of file main.cpp.

```
118     {  
119         BTNode value;  
120  
121         value.add(3);  
122         value.add(6);  
123         value.add(2);  
124         value.printBT();  
125         value.add(7);  
126         value.add(8);  
127         value.printBT();  
128         value.remove();  
129         value.remove();  
130         value.printBT();  
131  
132     }
```


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