linkedlist

0.0.1

Generated by Doxygen 1.8.17

1 Class Index	1
1.1 Class List	. 1
2 File Index	3
2.1 File List	. 3
3 Class Documentation	5
3.1 DLL Class Reference	. 5
3.1.1 Detailed Description	. 6
3.1.2 Constructor & Destructor Documentation	. 6
3.1.2.1 DLL()	. 6
3.1.3 Member Function Documentation	. 6
3.1.3.1 addHead()	. 6
3.1.3.2 addMiddle()	. 7
3.1.3.3 addToTail()	. 7
3.1.3.4 get()	. 8
3.1.3.5 printList()	. 8
3.1.3.6 removeHead()	. 8
3.1.3.7 removeTail()	. 9
3.1.4 Member Data Documentation	. 9
3.1.4.1 head	. 9
3.1.4.2 n	. 9
3.2 DLNode Class Reference	. 9
3.2.1 Detailed Description	. 10
3.2.2 Constructor & Destructor Documentation	. 10
3.2.2.1 DLNode()	. 10
3.2.3 Member Data Documentation	. 10
3.2.3.1 data	. 10
3.2.3.2 nextNode	
3.2.3.3 prevNode	. 11
3.3 Node Class Reference	
3.3.1 Detailed Description	. 11
3.3.2 Constructor & Destructor Documentation	
3.3.2.1 Node()	. 11
3.3.3 Member Data Documentation	
3.3.3.1 data	. 12
3.3.3.2 nextNode	
3.4 SLL Class Reference	
3.4.1 Detailed Description	
3.4.2 Constructor & Destructor Documentation	
3.4.2.1 SLL()	
3.4.3 Member Function Documentation	
3.4.3.1 addHead()	
o. non additionally	

3.4.3.2 addMiddle()	14
3.4.3.3 addToTail()	14
3.4.3.4 get()	14
3.4.3.5 printList()	15
3.4.3.6 removeHead()	15
3.4.3.7 removeTail()	16
3.4.4 Member Data Documentation	16
3.4.4.1 head	16
3.4.4.2 n	16
3.4.4.3 tail	16
4 File Documentation	17
4.1 /home/addis/linkedlist/linked-list/src/main.cpp File Reference	17
4.1.1 Detailed Description	18
4.1.2 Function Documentation	18
4.1.2.1 main()	18
4.1.2.1 main()	18 19
·	
4.2 /home/addis/linkedlist/linked-list/src/SLL.cpp File Reference	19

# **Chapter 1**

# **Class Index**

# 1.1 Class List

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

DLL					 		 					 											į	
DLNode					 																		ç	
Node .																								
SLL					 		 					 			 								12	

2 Class Index

# Chapter 2

# File Index

# 2.1 File List

Here is a list of all files with brief descriptions:

/home/addis/linkedlist/linked-list/src/main.cpp	
This is a test of CMake, doxygen, and GitHub	. 17
/home/addis/linkedlist/linked-list/src/SLL.cpp	. 19

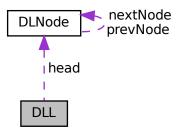
File Index

# **Chapter 3**

# **Class Documentation**

# 3.1 DLL Class Reference

Collaboration diagram for DLL:



# **Public Member Functions**

- DLL ()
- bool addHead (int d)
- bool addToTail (int d)
- bool removeTail (int d)
- int get (int ii)
- bool addMiddle (int ii, int d)
- bool removeHead (int &d)
- void printList ()

# **Public Attributes**

- DLNode \* head
- int n

# 3.1.1 Detailed Description

Definition at line 28 of file main.cpp.

#### 3.1.2 Constructor & Destructor Documentation

# 3.1.2.1 DLL()

```
DLL::DLL ( ) [inline]
```

#### Definition at line 33 of file main.cpp.

# 3.1.3 Member Function Documentation

# 3.1.3.1 addHead()

```
bool DLL::addHead ( \label{eq:def} \mbox{int } d \mbox{ ) } \mbox{ [inline]}
```

### Definition at line 38 of file main.cpp.

```
38
39
    DLNode* newNode = new DLNode(d);
40
    if (n == 0) { // the list is empty
41
        head = newNode;
42
    }
43
    else {
        newNode->nextNode = head;
        head->prevNode;
46
        head = newNode;
47
48
49
    }
50
    n++;
51
    return(true);
```

3.1 DLL Class Reference 7

#### 3.1.3.2 addMiddle()

```
bool DLL::addMiddle (
                  int ii,
                  int d) [inline]
Definition at line 113 of file main.cpp.
113
               DLNode* curNode;
               DLNode* newNode = new DLNode(d);
if (head == NULL) { // the list is empty
115
116
                    return(false);
117
118
119
               else if (ii >= n) {
120
                  cout « "ERROR: Asked for node beyond tail" « endl;
121
                    return(false);
122
               else if (ii < 0) {
123
                    cout « "ERROR: Asked for negative index" « endl;
124
                    return(false);
125
126
127
               else {
                    curNode = head;
128
                    // traverse list to desired node
for (int jj = 0; jj < ii; jj++) {
    curNode = curNode->nextNode;
129
130
131
132
                    newNode->nextNode = curNode->nextNode;
newNode->prevNode = curNode;
curNode->nextNode = newNode;
133
134
135
                    if (newNode->nextNode != NULL) {
136
137
                        newNode->nextNode->prevNode = newNode;
138
139
140
                    return(true);
141
               }
142
```

### 3.1.3.3 addToTail()

```
bool DLL::addToTail ( \label{eq:dtoTail} \mbox{int } d \mbox{ } \mbox{[inline]}
```

# Definition at line 54 of file main.cpp.

```
DLNode* newNode = new DLNode(d);
            if (n == 0) { // the list is empty
  head = newNode;
57
58
            else {
59
                DLNode* value = head;
60
                 while (value->nextNode != NULL) {
61
62
                     value = value->nextNode;
63
                newNode->prevNode = value;
newNode->nextNode = NULL;
64
65
                 value->nextNode = newNode;
66
69
            return(true);
70
```

#### 3.1.3.4 get()

```
int DLL::get (
                int ii ) [inline]
Definition at line 90 of file main.cpp.
            DLNode* curNode;
91
            if (head == NULL) { // the list is empty
92
93
                 return(-999999);
95
            else if (ii >= n) {
96
                 cout « "ERROR: Asked for node beyond tail" « endl;
97
                 return(-999998);
98
            else if (ii < 0) {</pre>
99
                  cout « "ERROR: Asked for negative index" « endl;
100
101
                  return(-999997);
102
103
             else {
                 curNode = head;
104
                  // traverse list to desired node
for (int jj = 0; jj < ii; jj++) {</pre>
105
106
107
                      curNode = curNode->nextNode;
108
109
                  return(curNode->data);
110
             }
111
```

#### 3.1.3.5 printList()

```
void DLL::printList ( ) [inline]
Definition at line 162 of file main.cpp.
162
163
              DLNode* curNode;
              if (head == NULL) { // the list is empty
    cout « "Empty list" « endl;
164
165
166
              else { // the list is not empty
167
168
                   curNode = head; // start at the beginning
                   while (curNode->nextNode != NULL) {
   cout « curNode->data « " -> ";
169
170
                        curNode = curNode->nextNode; // update to next node
171
172
173
                   cout « curNode->data;
174
                   cout « endl;
175
176
         }
```

#### 3.1.3.6 removeHead()

```
bool DLL::removeHead (
                 int & d ) [inline]
Definition at line 144 of file main.cpp.
144
              int val;
DLNode* old; // save off the old node
145
146
147
              if (head != NULL) {
148
                   val = head->data; // collect the data from node to be removed
                   old = head; // save off pointer to node we are removing head = head->nextNode; // update head to new node
149
150
                   head->prevNode = NULL;
delete old; // release the memory from the removed node
151
152
                   n--; // decrement n to show shorter list
153
154
                   d = val;
155
                   return(true);
156
              else { //list is empty
157
158
                   return(false);
159
```

#### 3.1.3.7 removeTail()

```
bool DLL::removeTail (
               int d ) [inline]
Definition at line 72 of file main.cpp.
           DLNode* var = head->nextNode;
           if (head->nextNode == NULL) {
75
76
                return(false);
           while (var->nextNode->nextNode != NULL) {
               var = var->nextNode;
80
           d = var->nextNode->data;
81
           delete var->nextNode;
var->nextNode = NULL;
82
83
           return(true);
88
```

#### 3.1.4 Member Data Documentation

#### 3.1.4.1 head

DLNode\* DLL::head

Definition at line 30 of file main.cpp.

#### 3.1.4.2 n

int DLL::n

Definition at line 31 of file main.cpp.

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

/home/addis/linkedlist/linked-list/src/main.cpp

# 3.2 DLNode Class Reference

Collaboration diagram for DLNode:



# **Public Member Functions**

• DLNode (int d)

# **Public Attributes**

- int data
- DLNode \* nextNode
- DLNode \* prevNode

# 3.2.1 Detailed Description

Definition at line 15 of file main.cpp.

#### 3.2.2 Constructor & Destructor Documentation

# 3.2.2.1 DLNode()

# Definition at line 21 of file main.cpp.

# 3.2.3 Member Data Documentation

#### 3.2.3.1 data

```
int DLNode::data
```

Definition at line 17 of file main.cpp.

### 3.2.3.2 nextNode

```
DLNode* DLNode::nextNode
```

Definition at line 18 of file main.cpp.

3.3 Node Class Reference 11

#### 3.2.3.3 prevNode

```
DLNode* DLNode::prevNode
```

Definition at line 19 of file main.cpp.

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

/home/addis/linkedlist/linked-list/src/main.cpp

# 3.3 Node Class Reference

Collaboration diagram for Node:



#### **Public Member Functions**

• Node (int d)

#### **Public Attributes**

- int data
- Node \* nextNode

# 3.3.1 Detailed Description

Definition at line 4 of file SLL.cpp.

#### 3.3.2 Constructor & Destructor Documentation

#### 3.3.2.1 Node()

```
Node::Node ( \label{eq:int_d} \mbox{int } d \mbox{ } \mbox{[inline]}
```

# Definition at line 9 of file SLL.cpp.

# 3.3.3 Member Data Documentation

#### 3.3.3.1 data

int Node::data

Definition at line 6 of file SLL.cpp.

#### 3.3.3.2 nextNode

Node\* Node::nextNode

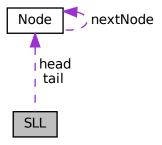
Definition at line 7 of file SLL.cpp.

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

/home/addis/linkedlist/linked-list/src/SLL.cpp

# 3.4 SLL Class Reference

Collaboration diagram for SLL:



# **Public Member Functions**

- SLL ()
- bool addHead (int d)
- bool addToTail (int d)
- bool removeTail (int d)
- int get (int ii)
- bool addMiddle (int ii, int d)
- bool removeHead (int &d)
- void printList ()

3.4 SLL Class Reference 13

# **Public Attributes**

- Node \* head
- Node \* tail
- int n

# 3.4.1 Detailed Description

Definition at line 15 of file SLL.cpp.

### 3.4.2 Constructor & Destructor Documentation

# 3.4.2.1 SLL()

```
SLL::SLL ( ) [inline]
```

#### Definition at line 21 of file SLL.cpp.

# 3.4.3 Member Function Documentation

#### 3.4.3.1 addHead()

```
bool SLL::addHead ( \label{eq:continuous} \text{int } d \text{ )} \quad [\text{inline}]
```

#### Definition at line 27 of file SLL.cpp.

#### 3.4.3.2 addMiddle()

```
bool SLL::addMiddle (
               int ii,
               int d ) [inline]
Definition at line 91 of file SLL.cpp.
            Node* curNode;
93
           Node* newNode = new Node(d);
           if (head == NULL) { // the list is empty
94
9.5
                return(false);
            } else if(ii >= n) {
96
               cout « "ERROR: Asked for node beyond tail" « endl;
98
                return(false);
            } else if(ii < 0) {
    cout « "ERROR: Asked for negative index" « endl;</pre>
99
100
101
                 return(false);
102
            } else {
103
                curNode = head;
104
                 // traverse list to desired node
105
                 for(int jj = 0; jj < ii; jj++) {</pre>
106
                     curNode = curNode->nextNode;
107
                 ^{\prime}// At this point curNode points to the node we want to add after
108
                 newNode->nextNode = curNode->nextNode;
109
110
                 curNode->nextNode = newNode;
111
112
                 return(true);
113
        }
114
```

#### 3.4.3.3 addToTail()

```
bool SLL::addToTail (
                  int d ) [inline]
Definition at line 40 of file SLL.cpp.
40
              Node* newNode = new Node(d);
41
              if(n == 0) { // the list is empty
  head = newNode;
42
43
                   tail = newNode;
45
                 tail->nextNode = newNode; // update the last node's next node to newNode
tail = newNode; // update the tail pointer to newNode
46
47
48
              n++;
49
              return(true);
```

#### 3.4.3.4 get()

} else if(ii < 0) {</pre>

3.4 SLL Class Reference 15

```
cout « "ERROR: Asked for negative index" « endl;
80
                     return(-999997);
81
               } else {
82
                     curNode = head;
                     // traverse list to desired node
for(int jj = 0; jj < ii; jj++) {
   curNode = curNode->nextNode;
8.3
84
86
87
                     return (curNode->data);
88
               }
          }
89
```

#### 3.4.3.5 printList()

```
void SLL::printList ( ) [inline]
```

```
Definition at line 132 of file SLL.cpp.
```

```
132
              Node* curNode;
133
              if(head == NULL) { // the list is empty
    cout « "Empty list" « endl;
134
135
              } else { // the list is not empty
136
137
                  curNode = head; // start at the beginning
                   while (curNode->nextNode != NULL) {
   cout « curNode->data « " -> ";
138
139
140
                        curNode = curNode->nextNode; // update to next node
141
142
                   cout « curNode->data;
143
                   cout « endl;
144
        }
145
```

# 3.4.3.6 removeHead()

```
bool SLL::removeHead ( \quad \text{int \& } d \text{ ) } \quad [\text{inline}]
```

### Definition at line 116 of file SLL.cpp.

```
116
117
            int val;
            Node* old; // save off the old node
118
            if (head != NULL) {

val = head->data; // collect the data from node to be removed
119
120
                 old = head; // save off pointer to node we are removing
121
122
                head = head->nextNode; // update head to new node
123
                delete old; // release the memory from the removed node
124
                n--; // decrement n to show shorter list
                d = val;
125
            return(true);
} else { //list is empty
126
127
128
                return(false);
129
      }
130
```

#### 3.4.3.7 removeTail()

```
bool SLL::removeTail (
              int d) [inline]
Definition at line 53 of file SLL.cpp.
          Node* var = head->nextNode;
          if (head->nextNode == NULL) {
              return(false);
58
          while (var->nextNode->nextNode != NULL) {
59
              var = var->nextNode;
60
          d = var->nextNode->data;
          delete var->nextNode;
          var->nextNode = NULL;
64
65
66
67
          return(true);
```

# 3.4.4 Member Data Documentation

#### 3.4.4.1 head

}

69

Node\* SLL::head

Definition at line 17 of file SLL.cpp.

#### 3.4.4.2 n

int SLL::n

Definition at line 19 of file SLL.cpp.

#### 3.4.4.3 tail

```
Node* SLL::tail
```

Definition at line 18 of file SLL.cpp.

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

• /home/addis/linkedlist/linked-list/src/SLL.cpp

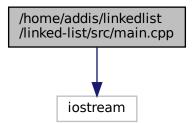
# **Chapter 4**

# **File Documentation**

# 4.1 /home/addis/linkedlist/linked-list/src/main.cpp File Reference

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

#include <iostream>
Include dependency graph for main.cpp:



# Classes

- class DLNode
- class DLL

# **Functions**

• int main (int, char \*\*)

18 File Documentation

# 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 (
    int ,
    char ** )
```

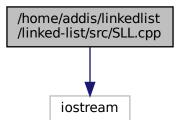
Definition at line 179 of file main.cpp.

```
180
           DLL myList;
           int retData; // for data from remove
181
182
183
           myList.printList();
184
           myList.addToTail(1);
185
           myList.printList();
186
187
           myList.addToTail(2);
           myList.printList();
188
           myList.addToTail(3);
189
           myList.printList();
190
           myList.addToTail(4);
191
           myList.printList();
192
           myList.addToTail(5);
193
           myList.printList();
194
          cout « "get(0) = " « myList.get(0) « endl;
cout « "get(1) = " « myList.get(1) « endl;
cout « "get(4) = " « myList.get(4) « endl;
cout « "get(5) = " « myList.get(5) « endl;
cout « "get(7) = " « myList.get(7) « endl;
cout « "get(-3) = " « myList.get(-3) « endl;
195
196
197
198
199
200
201
202
           myList.addMiddle(3, 10);
203
           myList.printList();
204
           myList.addMiddle(3, 11);
           myList.printList();
myList.addMiddle(6, 12);
205
206
           myList.printList();
207
           myList.addMiddle(0, 13);
208
209
           myList.printList();
210
211
           myList.printList();
           if (myList.addHead(retData))
    cout « "addedtohead " « retData « endl;
212
213
214
215
                cout « "list was empty" « endl;
216
           if (myList.addToTail(retData))
    cout « "RemovedTail " « retData « endl;
217
218
219
           else
220
                cout « "list was empty" « endl;
```

```
222
        myList.printList();
223
        if (myList.removeHead(retData))
224
             cout « "Removed " « retData « endl;
225
            cout « "list was empty" « endl;
226
        myList.printList();
227
        if (myList.removeTail(retData))
229
             cout « "Removed Tail " « retData « endl;
230
231
        myList.printList();
        if (myList.removeHead(retData))
    cout « "Removed " « retData « endl;
232
233
234
        else
235
            cout « "list was empty" « endl;
236
        myList.printList();
        if (myList.removeHead(retData))
    cout « "Removed " « retData « endl;
237
238
239
        else
240
            cout « "list was empty" « endl;
241
        myList.printList();
242
        if (myList.removeHead(retData))
             cout « "Removed " « retData « endl;
243
2.44
        else
            cout « "list was empty" « endl;
2.45
246
        myList.printList();
247
        if (myList.removeHead(retData))
248
            cout « "Removed " « retData « endl;
249
            cout « "list was empty" « endl;
250
251
        myList.printList();
252
        if (myList.removeHead(retData))
253
            cout « "Removed " « retData « endl;
254
255
             cout « "list was empty" « endl;
256
        myList.printList();
257
        if (myList.removeHead(retData))
            cout « "Removed " « retData « endl;
258
260
             cout « "list was empty" « endl;
261
        myList.printList();
        if (myList.removeHead(retData))
    cout « "Removed " « retData « endl;
262
2.63
2.64
        else
             cout « "list was empty" « endl;
265
        myList.printList();
267 }
```

# 4.2 /home/addis/linkedlist/linked-list/src/SLL.cpp File Reference

#include <iostream>
Include dependency graph for SLL.cpp:



#### **Classes**

- class Node
- · class SLL

20 File Documentation

#### **Functions**

```
• int main (int, char **)
```

#### 4.2.1 Function Documentation

### 4.2.1.1 main()

```
int main (
                 int ,
                 char ** )
Definition at line 148 of file SLL.cpp.
148
149
         SLL myList;
150
         int retData; // for data from remove
151
152
         myList.printList();
153
         myList.addToTail(1);
154
         myList.printList();
         myList.addToTail(2);
155
156
         myList.printList();
         myList.addToTail(3);
158
         myList.printList();
159
         myList.addToTail(4);
160
         myList.printList();
161
         mvList.addToTail(5):
162
         myList.printList();
163
         cout « "get(0) = " « myList.get(0) « endl;
cout « "get(1) = " « myList.get(1) « endl;
cout « "get(4) = " « myList.get(4) « endl;
cout « "get(5) = " « myList.get(5) « endl;
cout « "get(7) = " « myList.get(7) « endl;
164
165
166
167
168
         cout « "get(-3) = " « myList.get(-3) « endl;
169
170
171
         myList.addMiddle(3,10);
172
173
         myList.printList();
         myList.addMiddle(3,11);
174
         myList.printList();
175
         myList.addMiddle(6,12);
176
         myList.printList();
177
         myList.addMiddle(0,13);
178
         myList.printList();
179
180
181
         if (myList.removeHead(retData))
182
             cout « "Removed " « retData « endl;
183
184
              cout « "list was empty" « endl;
185
         myList.printList();
         if (myList.removeHead(retData))
186
              cout « "Removed " « retData « endl;
187
188
         else
189
              cout « "list was empty" « endl;
190
         myList.printList();
         if (myList.removeHead(retData))
    cout « "Removed " « retData « endl;
191
192
193
         else
194
             cout « "list was empty" « endl;
195
         myList.printList();
         if (myList.removeHead(retData))
    cout « "Removed " « retData « endl;
196
197
198
         else
             cout « "list was empty" « endl;
199
         myList.printList();
200
201
         if (myList.removeHead(retData))
202
              cout « "Removed " « retData « endl;
203
             cout « "list was empty" « endl;
204
         myList.printList();
205
206
         if (myList.removeHead(retData))
              cout « "Removed " « retData « endl;
```

```
208 else
209 cout « "list was empty" « endl;
210 myList.printList();
211 if(myList.removeHead(retData))
212 cout « "Removed " « retData « endl;
213 else
214 cout « "list was empty" « endl;
215 myList.printList();
216 if(myList.removeHead(retData))
217 cout « "Removed " « retData « endl;
218 else
219 cout « "list was empty" « endl;
218 myList.printList();
220 myList.printList();
```

22 File Documentation

# Index

/home/addis/linkedlist/linked-list/src/SLL.cpp, 19	DLNode, 10
/home/addis/linkedlist/linked-list/src/main.cpp, 17	Node, 12
	Node, 11
addHead	data, 12
DLL, 6	nextNode, 12
SLL, 13	Node, 11
addMiddle	
DLL, 6	prevNode
SLL, 13	DLNode, 10
addToTail	printList
DLL, 7	DLL, 8
SLL, 14	SLL, 15
data	removeHead
DLNode, 10	DLL, 8
Node, 12	SLL, 15
DLL, 5	removeTail
addHead, 6	DLL, 8
addMiddle, 6	SLL, 15
addToTail, 7	
DLL, 6	SLL, 12
get, 7	addHead, 13
head, 9	addMiddle, 13
n, 9	addToTail, 14
printList, 8	get, 14
removeHead, 8	head, 16
removeTail, 8	n, 16
DLNode, 9	printList, 15
data, 10	removeHead, 15
DLNode, 10	removeTail, 15
nextNode, 10	SLL, 13
prevNode, 10	tail, 16
providuo, io	SLL.cpp
get	main, 20
DLL, 7	
SLL, 14	tail
<b>312</b> , 11	SLL, 16
head	~ <del></del> , · •
DLL, 9	
SLL, 16	
- , -	
main	
main.cpp, 18	
SLL.cpp, 20	
main.cpp	
main, 18	
•	
n	
DLL, 9	
SLL, 16	
nextNode	